1914.

QUEENSLAND.

ANNUAL REPORT

OF

THE COMMISSIONER OF PUBLIC HEALTH

TO

30TH JUNE, 1914.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND.

BRISBANE:

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ANNUAL REPORT.

TO THE UNDER SECRETARY, HOME DEPARTMENT.

29th July, 1914.

SIR,—I have the honour to submit the following report upon the work of the department under my control for the year ending 30th June, together with certain comments and details relating to the public health of Queensland.

I.—GEOGRAPHICAL AND EPIDEMIOLOGICAL RELATIONSHIP.

From an epidemiological standpoint the geographical situation of Queensland between 9 and 29 degrees south, and 138 and 153 degrees east longitude, must be regarded as one of much importance, especially when considering its vast area of 670,500 square miles, with a sea border of about 3,000 miles, containing many important commercial ports.

The position is rendered more acute owing to this State being the first in the Commonwealth touched by oversea vessels *en route* from the East, from where exotic disease at any time may be introduced, especially as the present-day fast-travelling steamers can arrive on our coast well within the incubation period of smallpox before the nature of the illness can be definitely diagnosed.

Now that our vast and rich hinterland is being rapidly developed and tapped by railways to the principal ports, the risk of introduction of disease to our inland territory is daily becoming more facile, and consequently an ever-existing vigilance is required to checkmate such a contingency.

The principal points that require to be closely guarded with a view to prevention of the ingress of disease are Thursday Island on the north and Brisbane on the south. The former is the port of call for Eastern liners coming from—

(1) Hong Kong, where plague pursues its way uninterruptedly;

(2) Manila, where cholera periodically occurs;

(3) Java and Timor, where smallpox is endemic.

Thursday Island is also a centre for pearlers and traders with other islands of the East Indies, where the teeming native population is subject to endemic disease.

The vast island of New Guinea, on the opposite side of Torres Strait, carries endemic malignant malaria and tropical dysentery, and the existence of "carriers" of cholera and dysentery renders it feasible for our main ports at any time becoming infected. The cholera "carrier" must be regarded with a certain measure of fear as, although the patient may apparently be healthy, he may retain the germ for many weeks, and subsequently prove the means of spreading the disease. Brisbane being the point, through which travellers by sea or land enter this State from the South, makes it a likely focus of disease. As an instance, the recent mild cases of smallpox that occurred in Queensland developed at places situated on the Main Southern line, their origin being traced to Sydney.

Our capital is the nearest commercial point of Australia to the Western Hemisphere, and now that the Panama Canal is on the eve of completion it may be expected in the near future that direct communication will be established, when there will always be the possibility of yellow fever being brought to our shores.

The conveyor of yellow fever, the mosquito scientifically known as *Stegomyia Fasciata,* is a well-known habitat of both countries, but so far has not become infected on our shores. However, this misfortune may occur at any time by the female of the species becoming infected, when she may spread the disease to human beings after a period of from twelve or more days, and persons so inoculated may not manifest symptoms until thirteen days have elapsed, rendering it possible for a vessel to reach our shores well within this time with an undetected case on board.

It is claimed that Panama is now practically free of yellow fever, but, in view of the disease being present at Costa Rica and Guayaquil, there is no guarantee that it will remain quiescent, and with conditions favourable for the development of the mosquito which serves as an intermediary host for the parasite to which the disease is due, it should be borne in mind that prevention is better than cure, and, consequently, we should take all preventive measures possible in respect to mosquito destruction.

Large sums of money are unhesitatingly spent by nations for defence against invasion: why, then, should not our training in political economy equally prompt us to the necessity for expending necessary amounts in safeguarding public health.

Each healthy individual means a valuable asset to the State, and the wealth of a country should be gauged not by its gold but by the health of its population, which not only insures prosperity but attracts people from less favoured quarters. Men in these days think of their physical welfare and are not desirous of living in localities where insufficient attention is paid to the prevention of disease, and when there is over much sickness in a community, the country possessing health has the advantage in the competition for advancement over a less fortunate community.

II.—STATISTICAL.

The statistical particulars appearing herein afford gratifying and interesting reading, not only from an economic standpoint, but also in supporting the claims made for Queensland that it is as healthy, if not healthier, than any other part of the world.

The estimated mean population for 1913 was 652,555 and for 1912, 631,577, an increase of 20,978.

The crude birth rate (births per 1,000 of the mean population) for 1913 amounted to 30·26 as against 29·70 for the preceding year. This shows a healthy increase and compares more than favourably with the other countries appearing in the following table compiled from the latest figures available:—

CRUDE BIRTH RATE.

Country.	Year.	Birth Rate.
Queensland	1913	30·26
Commonwealth	1913	28·25
German Empire	1911	28·6
Netherlands	1911	27·8
New Zealand	1912	26·5
Norway	1911	25·9
Scotland	1911	25·6
Switzerland	1910	25
England and Wales	1911	24·4
Ireland	1911	23·2
Canada	1911	21·7
France	1911	18·7

The crude death rate (deaths per 1,000 of mean population) for 1913 was 10·39. This also shows a satisfactory condition and, in comparison with the other Australasian States, comes second to New Zealand.

Queensland has one of the lowest death rates in the world, as shown by the following table, taken from the "Official Year Book of Australia" (No. 7, 1914):—

Country.	Death Rate.	Year.
Canada	12·6	1911
Norway	13·2	1911
Denmark	13·6	1911
Sweden	13·8	1911
Netherlands	14·5	1911
England and Wales	14·6	1911
Scotland	15·1	1911
Switzerland	15·1	1910
Ireland	16·5	1911
German Empire	17·3	1911
France	19·6	1911
Italy	21·4	1911

The infantile mortality rate (deaths under one year per 1,000 born) for 1913 was 63·25, a reduction of 8.20 on the figures furnished for the previous year. This confirms the statements made in previous reports that Queensland is one of the healthiest countries in the world for young children.

The following table of rates of infantile mortality in various countries bears out the foregoing statement:—

RATES OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Infant Mortality Rate per 1,000.
Queensland	1913	63·25
New South Wales	1913	78·3
Victoria	1913	70·5
South Australia	1913	70·1
West Australia	1913	70·0
Tasmania	1913	70·7
Sweden	1910	75
Ireland	1911	94
Switzerland	1910	105
Denmark	1911	106
Scotland	1910	108
France	1910	111
Canada	1911	117
England and Wales	1911	130
Belgium	1910	134
Netherlands	1911	137
Italy	1910	142
German Empire	1911	192

The marriage rate for 1913 was 8·68. This is slightly lower than that for the previous year (8·91) but higher than that of any other part of the decade.

The following table, supplied by the Government Statistician, summarises the principal vital statistics of Queensland for the last decade:—

SUMMARY OF PRINCIPAL VITAL STATISTICS OF QUEENSLAND FOR DECADE 1904-1913.

(Furnished by Government Statistician.)

—	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
1. Estimated Mean Population ..	519,178	525,728	532,783	541,204	555,171	571,044	592,201	614,352	631,577	652,555
2. Number of Births	14,082	13,626	14,019	14,542	14,828	15,554	16,173	16,991	18,758	19,747
Rate per 1,000 Mean Population ...	27·12	25·92	26·31	26·87	26·71	27·24	27·31	27·66	29·70	30·26
3. Deaths under 1 Year	1,072	1,029	1,047	1,122	1,043	1,119	1,020	1,112	1,340	1,249
Rate per 1,000 Born	76·1	75·5	74·7	77·2	70·3	71·9	63·1	65·44	71·44	63·25
4. Deaths all Ages	5,250	5,503	5,095	5,599	5,680	5,530	5,145	6,544	6,921	6,783
Rate per 1,000 Mean Population...	10·11	10·47	9·56	10·35	10·23	9·68	9·70	10·65	10·96	10·39
5. Deaths in Public Institutions ...	1,452	1,661	1,565	1,744	1,796	1,705	1,865	2,127	2,270	...
6. Number of Marriages	3,078	3,173	3,588	4,105	4,009	4,512	4,769	5,169	5,628	5,662
Rate per 1,000 of Mean Population	5·93	6·04	6·73	7·58	7·22	7·95	8·05	8·41	8·91	8·68

Critics who, in the past, advanced our alleged unfavourable climatic conditions to support their predictions that Queensland could not be expected to keep pace with the advance enjoyed by her more favoured sisters must, in view of our present-day statistics, endeavour to find some other bogie to make good their forecast.

III.—COMMUNICABLE DISEASES.

The total number of cases of infectious diseases notified during the year under review amounts to 3,936, particulars of which appear in Appendices K and L.

The advantages derived from compulsory notification are numerous, and very materially assist in dealing effectively with the suppression of disease. These may be summarised as—

(*a*) Full and timely advice of all cases, their nature and location.

(*b*) Adoption of prompt measures for preventing the spread of infection.

(*c*) Securing strict isolation of the patient and thus preventing risk to others, and, when necessary, isolating the patient in hospital for that purpose.

(*d*) Ensuring the disinfection of premises as well as personal effects.

(*e*) Preventing the attendance of infected children at school.

(*f*) Ascertaining the scource of infection, including milk, water, and food supplies generally.

(*g*) Securing particulars concerning the sanitary conditions of premises whereat cases occur.

Information thus obtained proves of inestimable value in assisting the Department in dealing with the recrudescence of disease, and, in addition, is of much service for statistical purposes.

The requirements of the Health Acts in respect to notification render it compulsory for a medical practitioner who attends upon, or is called in to visit, a patient suffering from infectious disease to immediately notify the case to the occupier of the premises, the Commissioner of Public Health, as well as the Local Authority in whose area the case occurs.

The necessity for notifying the occupier is manifest, as it is incumbent upon him to take steps to prevent the other inmates of the premises from exposure to infection and also not to allow any room occupied by the patient to be again used before it has been thoroughly disinfected.

The Commissioner, on receipt of a notification, is enabled, should circumstances so warrant the course, to take early action to satisfactorily deal with the case.

The Local Authority is also required, on receipt of a notification, to investigate the cause, and, if any sanitary defects are found to exist at the premises, to take immediate steps to rectify same. The council must at once notify the head teacher of the school at which any of the children of the house attend. This course proves the means of preventing the spread of disease to other pupils.

Unfortunately, through lack of foresight, coupled with a desire of false economy, many Local Authorities fail to secure the services of a medical officer of health or a sanitary inspector, with the result that the utility of the notification system becomes futile and outbreaks of disease occur, and not infrequently become endemic, before the local governing body can be compelled to recognise its obligations. In such cases the services of this Department are frequently called into requisition to cope with the trouble, but experience shows in many instances that as soon as matters become normal a total indifference to protective measures follows. The laxity displayed by some of the rural Local Authorities in respect to the sanitation of their areas is undoubtedly responsible for the occurrence of disease, and until they engage the services of qualified officers whose special duty it is to attend to such matters little or no improvement may be expected.

In regard to the notification clauses of the Health Acts, it appears from the returns to date that medical practitioners are inclined to be apathetic in furnishing the required information, and, although every possible endeavour has been made to obtain particulars, it is much regretted that the response has not proved satisfactory.

In the interests of public health notification should appeal to medical men, and this is emphasised by a perusal of the advantages to be gained, as shown in the preceding paragraph. Section 134 renders notification mandatory and provides for the payment of a fee for furnishing same.

Smallpox.

Since the Department's last report was presented Queensland has been faced with the difficult problem of protecting itself against an epidemic of smallpox, which appeared in the neighbouring State and, indeed, at one time the position was far from reassuring, especially in view of the fact that the entire population could be classed as unvaccinated.

During July of last year, owing to the presence of this disease in Sydney, stringent measures were immediately taken to protect this State and, with this end in view, public vaccination depôts were established at the principal centres, and steps were taken for securing the immediate notification of any suspicious rash illness, such as chickenpox. The Epidemic Diseases Regulations, which provide ample power for dealing with emergencies, were made applicable to the whole of the State and materially assisted the Department to cope successfully with the occurrence.

The main gateways of entry into the State were closely guarded by stationing officers at the border as well as by keeping a close surveillance over traffic arriving by sea, passengers being compelled to produce vaccination certificates and to report at a central depôt at fixed periods.

The public at the various centres freely availed themselves of vaccination while the scare lasted; the depôts were rushed and all willing hands enlisted; in fact, at times the crowds awaiting vaccination became so unwieldy that the services of the police had to be requisitioned, a course which acted admirably and prevented confusion.

The staff of the Department was kept going at high pressure, and was untiring in responding to the call made upon them both in and out of official working hours.

As the measures taken against the disease continued to prove efficacious, public interest, however, began to wane, with the result that the depôts which, up to then, had been a scene of activity were practically deserted, and were

merely kept open for the convenience of travellers visiting the Southern States with the intention of returning to Queensland, and also for the examination of travellers arriving from the Southern States.

It is a matter of regret that only about 30,000 people were vaccinated in this State out of a population of 625,555, *i.e.*, less than 5 per cent. In this connection it is needless to quote the arguments in favour of or against vaccination beyond saying that it cannot be too strongly emphasised that this prophylaxis is the only reliable preventive that can be employed against future invasions of smallpox.

A striking example of this is instanced in the case of the Philippine Islands, where epidemics of smallpox were once endemic but has been practically wiped out by vaccination of the 10,000,000 of people, not a single death being reasonably attributed to the process.

With regard to the results of vaccination, a recent journal to hand shows that in Germany, where this measure has been compulsory for many years, there has been an average of 53 deaths annually from smallpox, whilst in Russia, with a somewhat similar population, and where there is no compulsory vaccination law, there has been an average death rate of 40,000. The consensus of opinion in the former country supports the statement that there is not the slightest risk from a careful antiseptic vaccination made with pure virus.

It might here be mentioned that the supplies of vaccine obtained from the South during the commencement of vaccination operations in this State proved to be somewhat unsatisfactory, so it was decided to obtain lymph locally, and the matter was placed in the hands of Dr. Harris, the Director of the Department's Laboratory of Microbiology and Pathology, who set to work and manufactured a lymph which proved entirely satisfactory and which is now being much sought after by medical practitioners throughout the State.

The above facts go to strengthen the utility of vaccination, which must be accepted as the strongest and only preventive measure against this loathsome disease, and on the other hand anti-vaccinists have, in face of reliable statistical records, failed to establish their contentions against its efficacy. Smallpox is the typical preventable disease, and its presence or absence is an index of the hygienic education of a community.

During the fiscal year 1913-14, 1,296 cases occurred in Sydney, but not one case occurred in a properly vaccinated person.

Notwithstanding that everything possible was done in taking precautionary measures, smallpox gained a footing in the southern portion of the State. The first case occurred in July and the last one in August. In all 5 cases were diagnosed, but these fortunately were of a mild type and were so quickly detected and carefully isolated that the danger of a spread of the disease was averted, and an outbreak that might have proved a disastrous blow to life and commerce was successfully checked by careful and timely management.

There is no guarantee, should smallpox again appear in our midst, that it will not be of the virulent type. Experience shows that even though the disease may start with the mild form it often happens that there is a sudden reversion to the ordinary type, carrying a death rate of one in three, and involving horrible disfigurement amongst a large proportion of the survivors.

During the month of November, while the outbreak was still present in Sydney, I visited Melbourne to meet in conference the heads of the Health Departments of the other States—

(*a*) To discuss the proposed repeal of the proclamation of Sydney as a quarantine area;

(*b*) The nature of the joint action of the Commonwealth and States in relation to similar epidemics that might occur in the future.

Much time was occupied in discussing the position from a commercial standpoint as well as from a medical point of view. The majority of the representatives favoured the removal of the embargo, which was accordingly carried out, certain obligations being imposed upon persons travelling to a clean State from an infected quarter, and the New South Wales Government appointing officers for enforcing and carrying out the stipulated conditions.

Typhoid Fever.

Typhoid fever still continues to claim its annual quota of victims. The number of cases notified in Queensland during the year ending 30th June was 1,386. Some of these occurred on sheep stations under the jurisdiction of the Shearers and Sugar Workers' Accommodation Acts, where, in a few instances, the sanitary arrangements were inadequate and were not in conformity with hygienic requirements.

Typhoid fever is always more or less prevalent in the back districts of Central and North Queensland, and seems to have established local endemic centres from which it spreads to other parts of the State, the intermediary being the "carrier." The meaning of a "carrier" signifies a person who, although apparently in good health, has previously suffered from typhoid and who intermittently passes typhoid bacilli in the fæces or urine. Unfortunately for his fellowman, he may continue for years unwittingly to spread the disease, and it is only by a careful examination of his excreta that he can be recognised as the cause of danger. Instances are on record where the origin of an outbreak has been traced to a "carrier" after every other source of inquiry has failed to elucidate the cause. Our experience is that when a "carrier" is traced he is generally willing to comply with the requirements of the law in respect to isolation and other necessary measures.

In the local centres flies are one of the chief agencies favouring the spread of the disease through the contamination of milk and food supplies. Water does not play such an important part in the more remote parts of the State as in other countries.

An outbreak occurred in January last at a sheep station near Blackall, Central Queensland, which affected a considerable number of people. The origin of the epidemic was probably due to a "carrier" of the Typhoid Bacillus, who had arrived from another part of the State and who was living in the men's quarters where all the cases had arisen.

Outbreaks at Rockwood Station, near Hughenden, and at Kingsthorpe, near Toowoomba, which happened during the present year, also point to the disease having its origin through transference from " carriers," and the course of the disease was maintained through the agency of flies and personal contact. There was no suspicion pointing to the water or the milk supplies in either of the outbreaks.

The following interesting particulars concerning a "carrier" of enteric in a Western township situated in Central Queensland are quoted as an instance of the danger of the disease being spread through this agency. The Medical Officer of Health when advising the result of his investigations as to the cause of the outbreak reports:—

> "I can trace no typhoid 'carriers' to the hotel lately. However, in a room next to the bar, a swag belonging to a man who died about three months ago from virulent typhoid fever had been lying on the top of a beer cask. This was periodically lifted down to the floor when fresh beer was required and replaced again on the top by three persons at different times—namely, the proprietress, her daughter, and a groom, all of whom are now suffering from typhoid fever, and it is possible that the swag was highly infectious and that the contagion got on the hands of the persons handling the swag and thence on to their food."

The "carrier" problem, then, must be faced, because it is frequently the starting point of an epidemic. It is believed that of all persons suffering from an attack of typhoid about 3 per cent. continue to harbour the germ, and to excrete same intermittently for varying periods, even for years, and, with the assistance of the common house-fly, to spread the disease broadcast.

The question now arises as to the methods to be adopted for the prevention of this disease, and I have no hesitation in advocating antityphoid vaccination, the value of which is well established. The protective power continues for at least two years, and probably longer, but so far no definite data is available on this point. Vaccine is prepared at this Department's Laboratory under the personal supervision of the Director, who possesses a wide experience of this particular subject. The reaction after using the vaccine is very slight and does not incapacitate the working man, except in very rare cases, and then only for a few days. Its value to groups of men, such as miners, shearers, railway construction workers, and others, is inestimable, but unfortunately the word "vaccination" to a great majority of the population still seems to spell "anathema," and as soon as it is mentioned is often met with an unconditional refusal to have anything to do with it, and no amount of explanation seems to convince them that it will not affect their working powers. They seem to prefer running the risk of contracting the disease rather than to submit to any process which may inconvenience them even for a day or two at the most.

Proofs are now accumulating of the unquestionable efficacy of preventive vaccination against the dreaded malady, and as soon as the results of the successes can be properly presented and digested by the lay mind much of the opposition and misapprehension with regard to its efficacy will be swept away and vanish. But the public must be educated gradually and led along the lines of least resistance.

The statistics at present are drawn principally from military circles, and this is readily understood, as it is in the area of military campaigns, expeditions, &c., where large bodies of men are collected together, that the statistics are more readily obtained, and where any gross infringement or laxity in sanitary habits is immediately reflected in the incidence of typhoid fever.

An interesting report on Antityphoid Vaccination in the French Army during the year 1912 was published in 1913. During the year 1912, 30,325 men were vaccinated in France and 22,832 abroad; in very few cases was there any local reaction on healthy subjects. Pyrexia and feverishness were only observed in 0·8 per cent to 1·5 per cent. of those vaccinated. During the same period the strength of the non-vaccinated men serving in France was 447,519, and the incidence of enteric fever amongst them was 2·22 per 1,000 with a death rate of 0·3 per 1,000, but out of the 30,325 vaccinated men not one case of enteric fever occurred.

The report by the Antityphoid Committee appointed by the Army Council (England), published in 1913, states the histories as regards typhoid fever of 19,314 soldiers, whose average period abroad was twenty months. The case incidence of typhoid fever amongst the vaccinated shows 5·39 per 1,000 and amongst the non-vaccinated 30·4 per 1,000. Finally the committee unanimously recommended that every measure which might be considered practicable should be employed to extend the practice of antityphoid innoculation in the army.

With a view to taking precautionary measures for the welfare of bush workers, and particularly shearers, public hospitals were communicated with, advising the resident surgeons of the Department's offer to issue free supplies of vaccine. Every publicity was given to the matter through the Press, and by this means it was hoped that the advantages to be derived from the use of this prophylactic would have been recognised, but, unfortunately, contrary to expectation, the response received proved most disappointing.

It is really difficult to imagine that men whose occupations necessarily expose them to such risk, situated as they are away from medical aid, should display such apathy in safeguarding their health, especially as they must acknowledge from the experience gained by their less fortunate comrades that an attack of typhoid not only means loss of wages but much expense in regaining health.

Diphtheria.

During the present fiscal years 624 cases of diphtheria were reported as having occurred within the Metropolitan Area and 976 cases in the outside area, making a total of 1,600 cases. During the preceding year the total number of cases amounted to (Metropolitan) 640, (outside areas) 1,788, total 2,428, which shows a decrease for 1913-14 of 828 cases.

The reason for the decrease may, in a measure, be attributed to the valuable co-operation rendered by the Department of Public Instruction in taking every possible precaution by excluding children from attending school immediately on being advised that a pupil was affected or that a case had occurred in the family. The swabbing of suspicious throats for bacteriological examination at this Department's Laboratory until three negative results are obtained also proved an important factor in preventing the spread of diphtheria. Parents are now beginning to recognise in this respect the importance of safeguarding the health of their children and the necessity for assisting by preventing as far as possible the healthy children from mixing with their less fortunate playmates, which in itself is the principal cause of the spread of the disease.

Phthisis.

During the year 1912 the number of cases notified amounted to 471. The death rate from tuberculosis in Queensland amounted to ·62 per 1,000 of mean population and the percentage of deaths from tuberculosis calculated on total deaths was 5·69, which figures are considerably lower than the rates shown for any of the other States.

The following table, extracted from the "Official Year Book of the Commonwealth of Australia," No. 7, gives the position of the other States for 1912, the latest year for which comparative figures are available:—

State.	Death Rates from Tuberculosis.			Percentage on Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales ...	0·80	0·62	0·71	6·55	6·54	6·55
Victoria	0·95	0·91	0·93	7·09	8·25	7·61
Queensland	0·78	0·44	0·62	6·20	4·86	5·69
South Australia ...	0·97	0·86	0·92	8·68	9·29	8·95
Western Australia ...	1·06	0·56	0·85	8·28	6·40	7·65
Tasmania	0·58	1·03	0·80	5·04	10·36	7·44

The death rate for 1913 for this State is ·61, a slight decrease on that of 1912, which is shown as ·62.

This very satisfactory condition may be attributed to our splendid climate. It is a generally acknowledged fact that sunlight and fresh air are fatal to the micro-organisms of tuberculosis, and these favourable influences, in the case of Queensland, are accountable for the very small proportion of our population being affected with this disease as compared with less favoured countries, where the people are unable so freely to work and live in the open. For instance, the death rate from consumption in 1911 in England and Wales per 1,000 was 1·08; Prussia, 1·51; Austria, 2·94; Hungary, 3·67. In these countries, on account of the damp climate, the overcrowding of tenements, and in many instances neglect of sanitation, the incidence is high. Statistics show that in some of the closely populated cities of America an average of 20 to 30 per cent. of all children living in the same room or apartment with a consumptive member of their family are affected with some form of tuberculosis.

The germs by which the disease is spread are usually associated with dust, dirt, and infected materials—the disease is not generally transmitted directly from one victim to another. Keep dust and dirt from the floor, out of food, away from the fingers or clothing or any means of conveying the germ to the mouth, and the possibility of transferring tuberculosis is considerably reduced. It is unnecessary to isolate every consumptive, but precautions must be taken to prevent the bacilli of the sputum being deposited on footpaths, floors, &c., as they are liable to reach others by means of dust.

The desire of the Department is to educate the public regarding the precautionary measures to be adopted for the prevention of the spread of the disease. A staff nurse, engaged for this particular branch of health administration in the Metropolitan Area, keeps a record of all cases of phthisis notified, and in turn visits the patients, explaining fully the steps to be followed by them to render themselves harmless to those they must associate with. The sufferers are recommended to abstain from expectorating except in a pocket cupola specially prepared at a small cost, so that after use it may be destroyed by burning. They also are advised to sleep in the open, and to live out of doors as much as possible.

Experience shows that the benefits derived by following closely these suggestions result in much improved condition on the part of the sufferer, and greater protection is afforded to those who occupy the same premises.

Benefits of Treating Consumptives in Sanatoria.—The treatment of cases of pulmonary tuberculosis in their incipient stages in a sanatorium has a twofold advantage, being in the interest of the patient as well as that of the public. It has been proved that under proper treatment in a well located sanatorium a considerable proportion of cases are likely to recover. In addition, the measures adopted in such institutions for destroying the patients' sputa prevent infection of the buildings and the ground. On the other hand, private dwellings, particularly those of the poorer classes, are more likely to become infectious after prolonged habitation by a consumptive patient, especially as disinfection cannot be carried out whilst the premises are still in occupation by the sufferer. Consumptives suffering in the advanced stages of the disease must necessarily be regarded as a menace to the health of the community, and unfortunately little or nothing can be done in the shape of treatment. The best method of dealing with such cases, when suitable accommodation cannot be found in their own homes, and when precautionary measures cannot be carried out, is to place them in an institution such as the Diamantina Home for Incurables, where they are no longer a source of danger to others and where everything possible is done for their comfort.

Venereal Diseases.

The Enthetic Diseases Regulations, as far as the present powers allow, may be regarded as a very important step in the right direction in dealing with this social evil, and as the legislation in force in this State is recognised to be the first of its kind much interest is centred in the result. The administration of these Regulations by this Department, as well as the treatment of both sexes, is conducted with the greatest secrecy.

As a result of the compulsory notification of venereal disease in the Metropolitan Area 1,090 cases were reported, made up as follows:—

Primary Syphilis	122
Secondary Syphilis	109
Gonorrhœa	859

It is quite safe to reduce these numbers by 10 per cent. to allow for duplication. Each medical man on seeing a patient reports same to this office, and, no name being furnished, it is possible for a case to be notified more than once.

It is a matter of regret that the particulars required on the prescribed form, particularly with reference to the question "Source of infection ascribed to," are not fully and completely supplied so as to admit of the source of infection being located. In many cases no answer is given. In others a vague reply is made. The importance of the answer to this question will show, if truly given, how easy it would be to find the man or the woman responsible for the dissemination of the disease. Only about 1 per cent. of the notifications contained this information, and on approaching the medical men as to why this question cannot be fully answered, the invariable reply is the patients refuse, probably through fear of being implicated in some charge that might be laid against the person responsible for spreading the trouble. The regulations provide for the latter undergoing examination by a medical officer of the department.

Many cases of gonorrhœa have been reported from the Hospital for Sick Children, and there is no doubt that the disease has been conveyed to the children by infection, either by towels, sheets, or clothes, thus proving the infectivity by other means.

Gonorrhœa is not considered so malignant by the generality of medical men, but Morrow, of New York, states that 80 per cent. of deaths from infections peculiar to women are due to gonorrhœa, and were it not for this disease the gynæcological departments of the hospitals might be almost done away with ("Journal American Medical Association"). In the same journal Rosenstein ventures the opinion that 20 to 25 per cent. of the inmates of institutions for the blind are the result of gonorrhœa alone.

Syphilis.—The mystery surrounding syphilis should be cleared by freely educating people to regard it in the light of a preventable communicable disease. It must not, as in the past, be looked upon as the outcome of moral degeneracy.

Dr. Mott, Pathologist of the London County Asylums, points out that 15 per cent. of the male admissions to the Asylums are general paralytics, directly due to syphilis, the cost of same to the Council being £60,000 per annum. For the cure of these diseases, apart from their prevention, we must rely upon efficient treatment carried out in ordinary general hospitals, where not only efficient but free treatment is given.

In so far as the Metropolitan Area of Brisbane is concerned, arrangements have been made by the Government for a special medical officer to be in attendance at the Brisbane General Hospital four afternoons each week. Provision is also being made for the erection of a new ward for indoor treatment.

With regard to syphilis occurring in outside areas, the hospitals are being supplied with Salvarsan as their needs require.

Of the 1,090 cases notified, 910 were males and 180 females, and were returned at the following ages:—8 from 1 year to 5, 7 from 6 to 10, 2 from 11 to 15, 153 from 16 to 20, 360 from 21 to 25, 295 from 26 to 30, 169 from 31 to 40, 64 from 41 to 50, 22 from 51 to 60, and 5 over 60 years; 175 of the infected persons described themselves as married, 897 as single, 13 as widowers, 4 as widows, and 1 as a divorced woman; 664 cases were notified from hospitals and 426 by medical practitioners. Eleven persons were required by order to present themselves for examination, 4 being males and 7 being females suspected to be suffering from venereal diseases in an infectious condition.

The reports of Dr. G. P. Dixon, Medical Officer for Enthetic Diseases, appears in Appendix C.

IV.—FOOD INSPECTION AND FOOD ADULTERATION.

It is gratifying to record that the Food and Drug Clauses of the Health Acts have been carried out in an energetic and tactful manner, and that the interests of the public have been protected as well as those of the trader and manufacturer. Before the advent of the present legislation, foodstuffs of a doubtful quality, manufactured outside this State, found a ready market to the detriment of local productions, which latter were to a large extent placed at considerable disadvantage in having to compete in prices with inferior goods, which were packed in all manner of fancy wrappers bearing misleading names as well as their country of origin.

The trader to-day recognises that the present conditions have greatly simplified matters for him, and that he has no longer any necessity for worrying about the quality of his goods, because suppliers are now compelled, in order to secure business, to guarantee their lines, which, if not up to standard, render them responsible for any trouble that may eventuate.

The food inspector is now regarded by traders in the light of a business friend who will willingly post them up with information and give any advice they may desire.

It is generally admitted that the food supplies now on the market are infinitely superior to what they were in the past, but nevertheless constant supervision is essential, because any relaxation in this respect would leave our markets open to cheap and inferior goods which allow of a larger profit to the retailer and find a ready outlet if not closely watched.

During the present year 1,615 food samples were obtained. Of these 702 were officially taken under the provisions of the Health Acts, and over 25 tons of foodstuffs were destroyed as compared with 150 tons during the previous year, which clearly shows that the trade recognises that it is useless to stock doubtful lines.

Milk vendors have in no way been neglected by the food staff, and many salutory examples have been made of those who have been guilty of adulteration. The housewife has to-day still good reason to mistrust this necessary staple article of food, as will be seen by a perusal of the report furnished by the Government Analyst. Fifty-nine prosecutions against milk vendors were instituted. In 45 samples the presence of added water proportioned from 2 to 28 per cent., whilst the 13 other samples showed a deficiency in milk fats ranging from 12 to 25·9 per cent. One prosecution escaped on a legal technicality. The fines and costs inflicted amounted to £512, as against £242 for 33 prosecutions for the previous year. This points out the fact that magistrates are no longer disposed to impose minimum fines on offenders.

The baker also has not been lost sight of, and those found retailing lightweight bread know to their cost that the food inspectors have shown them the interesting methods they adopt in dealing with this phase of the business.

Thirty-four liquor prosecutions were undertaken, and in many instances offenders were cautioned where the adulteration was slight. The publican who in the past enjoyed a pretty free hand now realises that his calling in life is not merely to grow rich at the expense of his clients but that he is obliged to retail the genuine article.

Every class of business has been closely inspected and brought into line with the requirements of the Food and Drug Regulations. Reports by the Government Analyst and Chief Food Inspector appear in Appendices D and G.

V.—PLAGUE AND RAT DESTRUCTION.

It is pleasing to record that no case of plague in man or rodent occurred in Queensland during last year. War against the rat still continues to be waged without cessation, and to this alone may be attributed the absence of plague.

As is generally known, the flea is the transmitter of plague from rat to man. Five thousand bacilli of bubonic plague can harbour themselves in the gizzard of one single flea. The bacilli multiply in the flea's stomach, which, however, appears in no way to be affected.

Powdered fleas from a plague rat have been injected into a healthy mouse, which straightaway sickened and died of plague.

Mice are as susceptible to plague as rats.

If no fleas or other suctorial parasitic insects existed there would be no transmitter of plague to man or from rat to rat. The *rat* is our chief danger, as when infected it carries plague in its body and hatches fleas in its nest, thus conveying the disease to man. Most strenuous action should therefore be taken for the destruction of the rodents. The Order passed by the Governor in Council in May, 1912, declaring rats to be noxious vermin, has proved of material benefit in dealing with rat-infested premises in the Metropolitan Area.

Owners of property in the past did little or nothing towards assisting the Department in dealing with the trouble, and the efforts of the gang were to a great measure frustrated through premises not being rendered proof against the pest. The law now compels the owner to keep his premises free of rats, and when necessary effect structural improvements to his property so that no accessible shelter is provided as a harbourage.

The Department, when satisfied that it is in no way competing with outside enterprise, undertakes to carry out all such work, and merely charges cost of material together with the amount of the men's wages. This secures requirements being carried out to the satisfaction of the officer in charge and only costs the owner the minimum expense possible. The results obtained by this measure are proving most satisfactory to all concerned, as when once the work is completed the services of the gang are available elsewhere, and the saving effected to produce and other goods more than compensates for the cost of the work.

An arrangement has been made with representatives of shipping companies and wharfowners in the Metropolitan Area by which their premises are kept free of rats by members of the Department's gang. An annual charge of £2 12s. for every 100 feet of river frontage is collected from the individual wharfowner towards defraying the wages of the men specially employed on this work, and for which a similar charge is levied against the various Local Authorities, as well as the Government. This scheme has so far been found to work satisfactorily and is the means of ridding the city wharves of rats, which previously were very numerous and were the cause of much loss through damage to goods.

The Department, apart from these measures, employs men to attend to the stone river retaining walls, which are continually treated by the laying of baits, and it is pleasing to report that the efforts of the ratmen are meeting with good results. Unfortunately some difficulty has been experienced in dealing with the rat nuisance in the city of Brisbane, as the Order referred to above does not contain the necessary legal powers for compelling the rat-proofing of street rubble walls, which are frequently found to afford harbourage and which, unless faced with cement, to a large measure render futile the work of the gangs in dealing with neighbouring places. However, the matter is receiving attention, and it is hoped that before long authority will be provided to overcome the present difficulty. It may be worthy of mention that the methods employed here for dealing with the suppression of rodents by rendering premises ratproof must not be regarded in the light of an experiment.

In dealing with the outbreak of plague in San Francisco, in 1908, Surgeon-General Blue, who had charge of the operations, used similar methods for destroying rats by laying concrete foundations under tenements, and rendering these ratproof. The Health Committee for that city reports: "After eighteen months of unremitting toil of poisoning and trapping rats and destroying their harbouring places, inducing, persuading, and compelling landlords, &c., to render their premises ratproof, the last vestige of the disease disappeared." However, the public do not appear to recognise their duty to assist in fighting the rat, and without this co-operation the work of the gang is much hampered.

Rats will not enter traps or take poisoned baits, no matter how enticing they may be, so long as the householder so generously, though

thoughtlessly, caters for their appetites. The housewife, unwittingly of course, seems to be really a splendid hostess in supplying the wants of innumerable rats which obtain free access to abundant supplies of foodstuffs, in the shape of waste matter, which is left uncovered and unprotected. Even the cat, which may be looked upon as the natural enemy of the rat, appears to have little status with the present-day housekeeper, being regarded more in the shape of a nuisance, with the result that the rat in some places has become a permanent lodger and "lord of all I survey."

Again, the amount of litter generally to be found stacked in the rear of most houses affords a safe harbourage for rodents which, under such circumstances, can with impunity, even in the presence of cat and dog, hold ground against the combined efforts of their would-be destroyers, and in face of all these obstacles the ratman is much handicapped in his work. Outhouses, sheds, &c., are commonly built so low to the ground that rats are afforded all that they can desire in the shape of safe retreats and undisturbed breeding warrens.

It must be acknowledged that if Queensland is to continue to keep out plague, which, in past years, proved a serious undertaking to deal with, the present preventive methods must be continued without abatement.

During the year some 12,005 rats were destroyed in Brisbane by the gang. Of these 9,165 were sent to the Laboratory of Microbiology and Pathology for examination for trace of plague, but none carried the bacilli. The carcasses of countless numbers that die from poisoned baits are not recovered, but it may be safely said that their proportion equals those caught in traps, &c.

At outside places, too remote from Brisbane for the sending of carcasses to the Laboratory, the system in vogue is to take blood smears on cover glasses, and these are sent for examination; their number for the year amounted to 3,368. At other places where this is not done the local Health Officer examines them in any suspicious cases.

Some 1,896 inspections have been made of premises during the year and 337 notices served on occupiers calling upon them to carry out requirements provided for in the Order in Council. A summary of the structural and other work carried out in the Metropolitan Area in this connection appears in the Chief Sanitary Inspector's report, Appendix F.

Particulars regarding rat destruction at outside places appear in Appendix J.

VI.—MOSQUITO DESTRUCTION.

During the past year the operations in connection with mosquito reduction work in the Metropolitan Area have steadily progressed, and the results achieved in certain localities have merited the encomiums received from many of the residents, who now realise that by strictly observing the methods laid down for screening their their tanks and doing away with other breeding-grounds they can enjoy the use of their verandas at night without being molested as they were in the past. In many instances residents notify this office when mosquitoes reappear and inquiries in the neighbourhood invariably lead to the discovery of some collection of water which has been allowed to stand, resulting in the breeding of numerous pupæ and the pest again causing trouble in the neighbourhood.

It must be borne in mind that the Department never set out in the endeavour to do away with the mosquito for mere comfort's sake, but with the object of dealing with the particular species responsible for the spread of disease, such as *Stegomyia fasciata*, the conveyor of yellow fever, and *Culex fatigans*, the conyeyor of filariasis and probably dengue fever, both of which species abound throughout the metropolis.

The vastness of the work entailed in mosquito destruction in the Brisbane Area, with only a small band of workers, is certainly a very large proposition, and to do it justice requires the co-operation of every Local Authority and every resident.

It must be clearly understood that the scheme is not an experiment, but a well-defined line of defence against the spread of insect-born diseases, and which in other countries has been successfully carried out. As an instance might be quoted the Zone of the Panama, which formerly was the home of yellow fever, and which was only freed of the pest spreading the disease after similar measures had been adopted, requiring heavy expenditure.

At the commencement of the mosquito destruction campaign, some eight metropolitan Local Authorities agreed to assist the Department by each contributing an amount of £52 10s., totalling £420 for the year 1913, but in this respect only seven Councils met their obligations, leaving £312, the balance of the total cost, to be borne by the Government. The matter was again brought forward during the present year, when it was pointed out to the Local Authorities concerned that about £900 would be required, and that if they agreed to co-operate by contributing two-thirds of the total cost, the Government would be responsible for the balance—*i.e.*, £300, which amount did not include expenses of administration, such as postage, stationery, and the supervising officer's salary.

Although the benefits of the scheme were fully discussed, the majority were reluctant in meeting the wishes of the Department. Some considered that the more thickly populated areas should bear the major portion of the expense, whilst others held that an assurance should be given that their contribution would be expended wholly in their respective areas, and were not content to await such time as the progress of the scheme would .have embraced their particular localities. This naturally would have interfered with the carrying out of the work originally outlined, which was that operations should start at a given centre and the worst breeding-places kept under strict control. Once the central position was completed, that area would require but small attention at a small cost, and the services of the squad would then be available for the adjoining lands, which would, in turn, be kept under control at little expense. Thus it will be seen that

although the outlying Local Authorities would not have reaped the full benefit of their contributions at the commencement, they would have in time as the work proceeded.

The Order in Council, dated 12th September, 1912, declaring mosquitoes to be noxious vermin, was found to contain insufficient powers to compel Local Authorities to deal even with street gullies and other repositories for collections of water, where mosquitoes breed. This will, until rectified, impose an increased burden on the Government.

At Cairns, the Council, recognising that, through recurring outbreaks of malarial fever, definite action was necessary, undertook the eradication of the pest at their own expense, and after the lapse of a few months reported:—

> "*Re Malaria and Suppression of Mosquitoes.*—I have the honour to enclose for your information copy of circular letter which has been posted on the back of the door of E.C.'s. Furthermore, much clearing and filling in have been done. The Nuisance Inspector makes a fortnightly visit to every house in the area, sprays the waterholes, and sees that the inhabitants keep up to the instructions. A consultation has been made with all the doctors of the town, and through the energetic action of this Council and the hearty co-operation of the owners of allotments in the endemic area, malaria has so decreased that this year there is not 1 per cent. of the incidence of last year."

The above is a striking example of what can be accomplished when the scheme is taken up in a whole-hearted manner, and reflects much credit upon the councillors, who by their action show that they have the interests of the ratepayers at heart and intend to do everything possible for the progress of the district which they represent.

During the period under review, 8,231 premises were inspected in Brisbane, upon which 1,995 rainwater tanks were found provided with screens and 6,251 unprotected. Seventy-nine wells, 116 pools, and 19 barrels were located and 64 roof gutters that were sagging and holding water observed. Upon 146 premises collections of rubbish were noted. During house-to-house visitation 5,583 notices were served by the members of the domestic squad, by whom also 9,997 re-inspections were made in order to ascertain and note results.

Reports show that up to the present time 5,764 tanks have been effectively screened and 61 removed, 46 wells either securely covered or screened and 5 wells filled in with earth, 8 barrels screened, 80 pools filled in, and 136 collections of rubbish removed.

The application of oil to swamps and street gullies has been systematically continued, "Petrolite" being principally employed for this purpose. The total quantity of oil consumed upon water surfaces during the year amounted to 5,372½ gallons.

A full report by Assistant Inspector Cooling, the officer in charge of the work, appears in Appendix H.

VII.—NORTHERN OFFICE.

The operations of the Northern Office at Townsville continue to prove satisfactory.

Dr. Booth Clarkson, who held the position of Medical Inspector for North Queensland, resigned on the 31st October, 1913. The vacancy thus occasioned has been freely advertised with a view to obtaining a successor for the position, but so far it has not proved sufficiently attractive to secure the services of a competent officer possessing some administrative experience as well as the necessary diploma of public health.

The present staff consists of a Senior Inspector, two Inspectors, and a part-time junior clerk.

The duties performed by the executive officers include both sanitation and food work. The scope of their operations covers a wide range of country, and necessitates a considerable amount of travelling in attending to outbreaks of infectious diseases throughout the Northern portion of the State, as well as matters connected with the food clauses of the Health Acts.

Much useful work has been performed by this branch in connection with food sophistication, and it is pleasing to record that efforts in this direction have proved entirely satisfactory.

The positions held by these officers cannot be classed as sinecures; they are often called upon to attend to unpleasant duties which necessarily bring them in opposition to those whose neglect in respect to sanitation is responsible for untold trouble. The following incident will serve as an example of what a sanitary inspector has to face at times when carrying out his duty:—A Local Authority requisitioned for the services of an inspector to undertake the supervision of a "clean-up" of the township. The premises of a local publican were found to be in a very insanitary condition, and the licensee, on being told what was necessary, became most offensive, but after much persuasion agreed to allow the inspector to do whatever was required. This boniface, after regaling himself with his own commodities, again became quarrelsome, and thereupon, by way of protest, levelled his gun and fired at the inspector.

Numerous instances have been reported where obstruction has been met with, even amounting in some cases to threatened assault.

The matter of further decentralisation in respect to the Northern Office has received consideration, with the result that arrangements are now under way for stationing an officer at both Cairns and Rockhampton, but the former will still remain under the control of the Northern Medical Inspector. The proposed change will not only effect a saving in travelling expenses, but will also ensure increased efficiency by securing more prompt attention to work of an urgent nature, which is most essential in dealing with health matters. A report on the working of the Office appears in Appendix I.

VIII.—LABORATORY OF MICROBIOLOGY AND PATHOLOGY.

The work performed at the Department's Laboratory under the directorship of Dr. J. J. Harris, M.B., D.P.H., continues to be in every way satisfactory. (*See* Appendix B.)

Health and Hygiene Exhibit.

Health and Hygiene Exhibit.

The scope of the branch has been much increased now that the preparation of a reliable smallpox vaccine is being carried out. This greatly relieves the situation, as the supplies obtained from the South during the recent outbreak were unreliable and at times difficult to obtain in sufficient quantities and, even then, at a considerably higher rate than what it now costs the Department to manufacture.

The tests made of urine and fæces in suspected typhoid fever carriers greatly assist in determining the course of action to be taken in dealing with outbreaks of typhoid.

The preparation of typhoid vaccine is also carried out at the Laboratory, and reports to hand from outside centres, where it has been used, show that it has fulfilled expectations.

Large numbers of throat swabs in connection with diphtheria continue to be submitted for examination. By this means the spread of the disease to numbers of school children is prevented and it is of inestimable value in determining the diphtheria carrier, who otherwise would be the means of widely spreading the disease.

The medical profession throughout the State continue to submit pathological specimens for examination and freely avail themselves of the Laboratory in connection with their cases.

In conclusion, I take this opportunity of expressing my appreciation of the high standard of efficiency maintained at the Laboratory, which has afforded much valuable assistance in combating disease by the preparation of vaccines, as well as the examination of specimens, cultures, &c.

IX.—REGISTRATION OF NURSES.

During the past year twelve formal meetings of the Nurses' Registration Board were held. This does not include some six other meetings in connection with the two examinations held in the months of December and May last.

The results of the examinations were as follows:—52 general, 16 midwifery, and 6 mental; in addition to these the Minister authorised the following registrations:—General, 21; midwifery, 35; mental, 2; making a total of 132 registrations for the twelve months.

The principal towns of the State were appointed as examining centres, and this enabled nurses to sit for examination without having to journey long distances away from their respective hospitals.

Some thirteen general hospitals and two maternity hospitals have been added to the list of training schools for nurses. Appendix E contains this year's report of the Nurses' Registration Board.

X.—HYGIENIC EXHIBIT.

During the month of August last an interesting display was made at the National Agricultural and Industrial Association Show. The Commonwealth Department of External Affairs secured from the Royal Sanitary Institute, London, a valuable collection of models and appliances, which were kindly loaned to this Department, who, in the interests of public health, displayed them at the Exhibition Buildings, together with other models of local interest, including specimens of appliances used in connection with operations for the suppression of the mosquito pest. The Departmental staff of inspectors were present to explain the use of the various models and imparted some useful information regarding hygiene as well as the many advantages concerning modern sanitary fittings.

Disinfectants, and the methods of disinfection, also attracted much attention. Visitors from country towns interested in matters of local government were indefatigable in obtaining complete particulars for their future guidance, and highly appreciated the opportunity afforded them in gaining information concerning the latest modern methods for dealing with the disposal of nightsoil by means of septic tanks as well as by incineration. Models of sanitary appliances suitable for rural townships attracted considerable attention—in fact, the whole display proved an entire success from an educational standpoint.

Photos of the exhibits appear herewith.

XI.—PERSONNEL OF STAFF.

The changes in the personnel of the staff during the year whilst not numerous have been important, embracing as they did the resignation of my predecessor, Dr. J. S. C. Elkington, which took effect from the 16th November last, from which time my appointment as Commissioner of Public Health also dates.

The vacancy created for the position of Health Officer was filled by the appointment of Dr. J. E. Thomson, M.B., M.Ch. (Edin.), D.P.H. (Camb.), on the 9th January.

The resignation of Dr. J. Booth Clarkson as Medical Inspector of North Queensland on the 31st October, 1913, was also accepted, and so far the vacant position remains unfilled owing to the difficulty of obtaining the services of a medical practitioner possessing the requisite qualifications for public health work, as well as administrative ability, for the remuneration attaching to the appointment.

Dr. M. W. Phipps, M.R.C.S. (Eng.), Assistant Health Officer, resigned on the 6th March, 1914, and his place was filled by Dr. C. H. Clatworthy, M.B. (Sydney), on the 4th April, 1914.

The services of Dr. G. P. Dixon, M.B., M.Ch. (Sydney), Medical Officer to the Enthetic Diseases Dispensary, were also obtained for the Examining Rooms, William street, as from 7th February, 1914, previous to which date the necessary work had been carried out by Dr. Crowe, who was then temporarily employed in the Department in connection with public vaccination.

Mr. Mark Plumb was appointed as Acting Food Inspector on the 17th February, 1914, and has proved useful for special work.

Miss Mabel Webb was appointed Assistant Staff Nurse on the 1st December, 1913, *vice* Miss Reidy, resigned.

Mr. H. E. Brown was appointed an assistant in the Laboratory of Microbiology and Pathology on 1st July, 1913, to fill a vacancy through transfer of another officer.

The headquarters staff at the end of the year under review thus consisted of a Commissioner, a health officer, an assistant health officer, a secretary, a senior clerk, a chief sanitary inspector, a chief food inspector, four sanitary inspectors, five food inspectors, one assistant sanitary inspector, one assistant food inspector, a staff nurse, an assistant staff nurse, two typistes, three clerks, and a messenger.

The secretary of the Department is also secretary of the Nurses' Registration Board, and the clerical work of the latter is performed by the head office under his supervision.

A rat gang consisting of eleven men with an acting foreman, who is also an acting sanitary inspector, is employed in the Metropolitan Area.

A ratcatcher is situated at each of the following places:—Maryborough, Bundaberg (2), Rockhampton, Mackay, Townsville, and Cairns.

Two men are engaged on disinfection work in the Metropolitan Area.

A mosquito squad for the Brisbane Area comprised six men together with an assistant inspector.

The staff of the Laboratory of Microbiology and Pathology consisted of the Director, one principal assistant, two assistants, one clerk, and an attendant.

The staff of the Northern Office comprised three inspectors and a part-time clerk.

The administration of Peel Island Lazaret is carried out by this Department, the actual working staff consisting of a superintendent, an assistant superintendent, two cooks, two assistant cooks, one dresser, four attendants, one housekeeper, and two labourers. Inmate labour comprises one carpenter, two laundrymen, and three attendants.

During the outbreak of smallpox in Sydney it was considered advisable to station the Assistant Health Officer at Wallangarra, on the Queensland border, for a period of five months. His absence from Brisbane, as well as the additional work entailed by the inauguration of a scheme of public vaccination, necessitated the temporary employment of six medical practitioners and six nurses.

CONCLUSION.

In the rank of a nation's importance the health of a country stands foremost. On it depends the welfare and material prosperity of its people—in fine, it is the existence of a nation. Infectious disease, which is largely one of the results of the social evils of the present day, sooner or later proclaims its presence, when it has to be investigated, fought, and remedied, and it is the part of a Health Department to ameliorate conditions and as far as possible to protect a community from the causation of disease.

The special feature of the work performed during the past year has been an untiring and ceaseless endeavour to protect the State from a visitation of an epidemic, and it is with pleasure that I am able to record that the success attained in this respect has far exceeded expectations.

The statistical returns appearing on Appendices K and L show that the incidence of disease throughout the whole of Queensland has been lower than previously, which to a great measure can be ascribed to the close surveillance exercised. The individual reports furnished by the respective officers in charge of the various branches of the Department all speak well for the work performed during the year under review. Despite the fact that in numerous instances recourse to legal proceedings has been necessary; yet in no case has any objection been raised or complaint made as to the methods adopted.

The officers of the Department entrusted with general sanitation work are in part responsible for the marked improvement in health matters, and the success attained by them in supervising hygienic conditions at places where outbreaks of disease occurred throughout the State is worthy of much approbation. No duty, however unpleasant it may be, comes amiss to the sanitary inspectors. Their services have largely been availed of by Local Authorities on matters requiring technical advice. Wherever isolation camps are formed an inspector is at once placed in charge, and upon him falls the responsibility of supervising and controlling, under a Health Officer, the whole management of the encampment, where he remains until all danger has passed.

During the recent smallpox scare these officers were stationed at the Border and at public vaccination depôts, and were also placed in charge of the various isolation camps.

In reviewing the operations of the Department for the past year, it will be noticed that much useful work has been performed at the Laboratory of Microbiology and Pathology in tracing the "carrier" in water as well as in excretal matter, and in obtaining information in respect to venereal diseases by means of the Wasserman test; indefatigable chemical analyses have been made of foodstuffs, drugs, &c.; the wily milkman has been greeted early in the morning; the bakehouse has been overhauled; and the wayback publican has not been overlooked; warfare continues to be waged against the mosquito; the rat nuisance has been continually and satisfactorily dealt with; every endeavour is being made to educate the consumptive in his own interests as well as to his being a source of danger to others; the diphtheria "carrier" is closely followed; every comfort and care have been bestowed upon the inmates of the Lazaret; and technical sanitary advice concerning drainage, septic tank installations, disposal depôts, as well as other problems affecting Local Authorities, has been freely given.

Notwithstanding that everything possible has been done for ensuring satisfactory hygienic conditions at outside centres, increased efforts on the part of local governing bodies, as well as from the general public, are necessary so as to secure a further decrease in the incidence of preventable diseases, and this desired aim can only be attained by hearty co-operation and by strict adherence to sanitary requirements. Particular attention should be paid to the following matters:—Protection of public water reservoirs, every care being exercised to prevent the avenues leading to the supply being in any way contaminated; the cleansing of household tanks on account of

accumulations of sediment, which are oftentimes found to be most offensive and the cause of disease; the adoption of the duplieate pan system and the supplying of deodorant, as well as the providing of proper eloset lids, so as to eheek, as far as possible, the spread of flies, whieh are recognised as the most dangerous disseminators of disease; the disposal of household refuse, whieh should be earried out on the lines reeommended by the Department; the providing of disinfeeting outfits by Loeal Authorities, and in large eentres the ereetion of infeetious diseases hospitals for the segregation of patients; Loeal Authorities should seeure the serviees of a medieal offieer of health, as well as a whole-time sanitary inspector, who would prove of valuable assistance in safeguarding the health of their areas.

In this progressive age it should be the aim of every responsible sanitary exeeutive to advanee with the times and not be satisfied to eontinue with ancient methods in respeet to sanitation.

Finally, as a good foundation is necessary for the construction of a good building, so also is good executive administration neeessary for the successful organisation of a publie health department, and in this eonnection I have to tender my sincere thanks to the staff in general for their zealous and untiring assistanee, and in particular to the able seeretary, Mr. L. E. Mellish, to whom a special meed of praise is due for the high standard of the clerieal braneh; to Mr. J. B. Henderson, Government Analyst, for the valuable information he has so untiringly furnished in connection with food analyses, whieh has faeilitated the work of the Department; and to the staff of the Institute of Tropieal Medieine, Townsville, for the useful assistanee given in respect to speeimens.

I have, &e.,

J. I. MOORE,
Commissioner of Publie Health.

APPENDICES.

APPENDIX A.

REPORT OF HEALTH OFFICER.

6th July, 1914.

Sir,—I have the honour to submit my report for the year ending 30th June, 1914, but as my appointment to this Department only dates from the month of January of the present year my report cannot be as complete as I would desire.

METROPOLITAN AREA.

Typhoid fever and diphtheria are the diseases which have been most prevalent during the year, and I am of opinion that the privy system and the method of disposal of excreta are more than responsible for the occurrence of typhoid fever over other causes, such as polluted water and milk, and it may be regarded as a disease-spreading system, particularly as it provides a breeding-ground for flies, to which the cause of the mischief may be attributed.

In an outbreak of typhoid fever in Newcastle-on-Tyne, in 1913, it was found that the cases were almost exactly three times more numerous in the privy households than in those on the water-closet system. This shows that a water-carriage system is preferable in every way and should as soon as possible be adopted.

In all large cities of England and America wherever water carriage has been substituted for the primitive earth disposal it has been closely followed by a diminished incidence of typhoid fever amongst the community.

Kingsthorpe, situated about 12 miles north-west of Toowoomba, was visited by me on the 1st and 2nd of May of the current year in connection with a reported outbreak of typhoid fever in that town. The conditions met with all tended to corroborate the experiences of other towns with regard to its being spread by contact and not so much to water and milk, as is generally supposed. The source of attack in most instances is generally due to unrecognised mild cases in children.

Diphtheria has again been fairly prevalent, but less this year than the previous one, and all carriers have, as far as possible, been kept under close observation, and in every case where possible one of the Department's nurses has taken swabs from the throats for bacteriological examination, as well as from the nasal discharges, which are often found to contain the diphtheria bacillus. Frequently the disease maintains its existence, although all possible measures have been taken to cope with it, through the existence of mild cases which often escape detection, being viewed merely as cases of simple inflammatory sore throat or as ordinary tonsilitis by parents who neglect to obtain medical advice, which if obtained would result in a case of real diphtheria being detected. Parents should therefore be especially careful to note any suspicious symptoms, such as sore throat, foul breath, headache, feverishness, shivering, and swelling of the glands at the angle of the jaw, which are very suggestive of diphtheria. It should be borne in mind that children often make no complaint with regard to their illness in the initial stages of the disease, and only when symptoms of respiratory trouble and obstructed breathing become prominent is it then suspected that everything is not right. No time should be lost when a child shows any of the above conditions to seek skilled medical advice, and all suspects should be kept from attending school and isolated from other children, so that necessary measures may be taken for the immediate suppression of the spread of the disease.

The parents of children can assist by being on the alert in watching for the above symptoms. This also applies to school teachers, who should look out for any suspicious signs amongst the children under their charge.

The Lazaret, Peel Island, was taken over by me from the Assistant Health Officer on the 10th February of the present year. The subjoined is a list of the inmates for the fiscal year, together with the deceases and discharges.

Total number of inmates remaining on 30th June, 1913, was		56
Admitted during the year ending 30th June, 1914—		
Whites, 5; Coloured, 3		8
		64
Died during the year ending 30th June, 1914—		
Whites 4 (male 2; female 2)		
Coloured 5 (male 5; female 0)		14
Discharged during the year ending 30th June, 1914—		
Whites 2 (male 2; female 0)		
Coloured 3 (male 3; female 0)		
		50

Leaving a total of 50 inmates on 30th June, made up as follows:—

White females	4	22
White males	18	
Coloured females	3	28
Coloured males	25	
		50

The male coloured inmates included—Aboriginals, 11; Kanakas, 14; Chinese, 2; Japanese, 1. Total, 28.

The varieties of disease amongst the patients are:—

1 Nodular Leprosy
2 Maculo-Anæsthetic
3 Mixed Leprosy
4 Nervous Leprosy

Leprosy still maintains its reputation as an untractable and stubborn disease to treat, being only slightly amenable to any form of medica-

tion. Various remedies, patent medicines, specific nostrums of nondescript character, one after the other, have each held the field for a limited while, only to be supplanted by some other composition or *soi-disant* specific with equally high-sounding pretensions to being a universal panacea for the disease, one of the last being Nastin, for which exceptional virtues were claimed and upon which great expectations were built, but, after being tried extensively in other leper colonies in different parts of the world, tends more and more to recede into the shadowy sphere of respectable obscurity, not having verified the claims which have been advanced in support of it.

All the resources of the Standard Pharmacopœia have been commandeered into practice against the scourge, every imaginable drug tried, and many are still under experiment. A specific and sure method of treatment has yet to be discovered, and out of the whole armamentarium of drugs only one has proved itself of any virtue, and that one is chaulmoogra oil, or its refined constituent, antileprol, which dominates the therapeutic field as far as leprosy is concerned, antileprol being preferable, as it causes less gastric disturbance than the unrefined oil when given by the mouth, but the pure chaulmoogra oil is more effective, as in the process of refinement some of the more active constituents of the oil must be removed, and many of the failures attributed to it have been due to the frequency with which it is adulterated.

Unna says, "that if all patients could tolerate chaulmoogra oil in proper doses for prolonged periods it would be as much a specific in leprosy as mercury is in syphilis." The objections to its causing nausea and gastric disturbance, if not completely obviated, could be very much mitigated, or at least ameliorated, by its administration internally in capsules as in the case of antileprol at present.

Several cases are under treatment at the Lazaret with antileprol, and though some of them appears to be improving, it would be premature and injudicious to affirm at the present juncture that the improvement is entirely due to its use, or whether it is only contributory to a combination of causes, not least amongst those being an improved mental condition which usually stimulates the hopes and interests of patients exalted by the expectancy of any new form of treatment. Its continuance will, however, be persevered with, but to demonstrate a complete cure a considerable period of time must be allowed to elapse, as there is a tendency to recurrence, so that only after three or four years' continuous use amongst large numbers of patients and diversified forms of the disease could such an important announcement be made, or before any well-grounded optimism could be indulged in as to form any secure basis for its efficacy as a permanent and lasting remedy. The results of its continued administration here and in other places where it is being put upon its trial will therefore be watched by all scientific and other workers in various parts of the world with the closest interest and with the enthusiastic desire and wishes that it may prove for itself all that has been advanced in support of its reputation as an obstructive barrier to the gradually encroaching advance of this repulsive evil.

Rat Gang.—The number of rats destroyed by the rat gang in the Metropolitan Area amounts to 12,005, of which 9,453 were bacteriologically examined.

Several visits were made by myself in company of some of the members of the Sanitary Staff of this Department to various parts of the Metropolitan Area to observe the effectiveness of the cement baffle walling in various buildings for the purpose of preventing the ingress of these rodents into the interior of them, and so making and keeping them ratproof, and if proprietors of immovable estate could only properly estimate the economic saving of such a measure, more frequent recourse would no doubt be made to it.

In the United States of America, where every opportunity is turned to practical account, a rat census established the fact that there were more rats in the United States than people, and the upkeep of each rat is reckoned at about half a cent a day, and estimating only one rat to each person, there is lost by these pests about £33,440,000 annually. One farmer had reported that rats had destroyed in one year 2,000 bushels of corn stored in cribs, and another reckoned his loss in grain and poultry for one season as sufficient to pay his taxes for three years, and there is no reason to suppose that their depredations in this State represent a less commercial value according to their numbers than is the case in the United States, as they are remarkably prolific, are nocturnal in their habits, living in holes, only coming out by necessity to appease their hunger, so that their silent peculations would amount to a considerable sum if properly gone into and totalled up annually as was done in the United States.

Vaccination.—Although free vaccination has been instituted by this Department since April last, very few people in proportion to the whole of the population have availed of the opportunity to protect themselves against the ravages of a disease like smallpox once it raises its hand in virulent form, and it is a deporable fact that, so far as the majority of people are concerned, vaccination can only be looked for under the stress of panic, the disadvantages of which on a large scale it is unnecessary to dilate upon under such circumstances. Nothing short of an epidemic tends to convince some people of the efficacy of vaccination, and the mildness of the disease in the State of New South Wales, and under the ægis of which the populace shelters itself, is no guarantee that it will not assume a virulent character at any moment, and so upset the preconceived notions with regard to the mildness of smallpox, which seems to be widely prevalent at the present time.

Yours, &c.,

J. E. THOMSON,
Health Officer.

The Commissioner of Public Health,
Brisbane.

APPENDIX B.

REPORT OF DIRECTOR, LABORATORY OF MICROBIOLOGY AND PATHOLOGY.

14th July, 1914.

SIR,—I have the honour to submit the following report of the work done in this Sub-Department of the Department of Public Health during the year ending 30th June, 1914:—

PLAGUE.—No specimens of suspected human plague were received for examination, but the routine examination of rats and mice was continued during the year. Although an increased number was examined, no evidence of plague was found. Spleen smears of rats from the Northern coastal towns were also examined, and in none of them was the plague bacillus detected.

TUBERCULOSIS.—An increased number of specimens was examined for the tubercle bacillus, but beyond a large percentage of positive results nothing noteworthy resulted.

TYPHOID FEVER.—A large number of bloods were examined for Widal's reaction. Specimens of water, fæces, and urine were examined for the presence of the bacillus typhosus, but in no case was it detected. In the case of water, this failure to isolate the bacillus, if it was really there, was no doubt due to the fact that most of the waters came from country towns, distant a good twenty-four hours from the Laboratory. In addition to this, no attempt was made by any of the senders to keep the water on ice during transit.

LEPROSY.—The number of specimens examined shows a falling off when compared with last year, but the number in which the bacillus was found shows an increase.

DIPHTHERIA.—Compared with last year, the number of culture media examined for the diphtheria bacillus shows a big decrease. This decrease was due to the subsidence of the epidemics in Childers and Mackay, which swelled last year's returns so abnormally.

GONORRHŒA.—A largely increased number of pus smears was examined for the gonococcus. Most of these were received from the Health Department. Of 556 so examined the organism was found in 62.

SYPHILIS.—Since my last Annual Report, the Wassermann reaction for the detection of syphilitic antibody in serum has been done weekly. Altogether 529 sera were examined, of which 242 gave a positive reaction. The results were on the whole very consistent, which was rather surprising, because of the small amount of serum supplied from each patient. If it were possible to obtain double or treble the quantity of serum any inconsistencies in the results would disappear.

SECTION CUTTING AND DIAGNOSIS OF TISSUES.—The number of tissues of which sections were cut and diagnoses made was less than last year.

MEDICO-LEGAL WORK.—Comparatively little work of this nature was done during the year.

AUTOGENOUS VACCINES.—A big increase occurred in the number of autogenous vaccines made during the year, and some interesting results could possibly be elicited from a collective examination of them, if it were possible to obtain some clinical history of the cases, with an account of the results of treatment. Although attempts were made to obtain the results of treatment by each vaccine made, but little success resulted.

STOCK VACCINES.—The stock vaccines supplied consisted mainly of stock antityphoid vaccine for immunising purposes, of which nearly 2,000 doses were sent out. During the year attempts were made to persuade some local medical men to try a sensitised typhoid vaccine therapeutically, but with little success. The prophylactic vaccine was chiefly supplied to public bodies and hospitals.

CALF-LYMPH MANUFACTURE.—During the year about three litres of calf lymph were made in the Laboratory, approximately sufficient to protect every person in Brisbane against smallpox. The greater part of this has, however, become inactive, because of the delicacy of the organism, and because of the conditions of calf inoculation, &c., being inimical to the well-being of that organism. In the near future, however, the conditions of manufacture will improve, because a room specially built for the purpose will be available, and I have no doubt that there will be an improvement in the potency and keeping qualities of the lymph.

On the whole the Laboratory has been busier than for any similar period in the past, a falling off in the total number of examinations being more than made up for by the time-consuming qualities of the work done.

A tabular summary of the specimens above referred to will be found appended.

I have, &c.,

JOHN J. HARRIS,
Director.

The Commissioner of Public Health,
Brisbane.

TABLE GIVING PARTICULARS OF SPECIMENS EXAMINED AT LABORATORY OF MICROBIOLOGY DURING YEAR ENDED 30TH JUNE, 1914.

A.—Specimens Examined with view to Diagnosis.

Disease Suspected.	Nature of Specimen.	Number.	Positive.
Plague	Rats	9,165	..
	Mice	653	..
	Townsville Smears	1,897	..
	Mackay Smears	826	..
	Bundaberg Smears	349	..
	Rockhampton Smears	119	..
	Bowen Smears	96	..
	Gladstone Smears	81	..
Tuberculosis	Sputum	530	182
	Pus	2	..
	Urine	7	1
	Blood	1	..
Typhoid	Blood	459	161
	Water	43	..
	Faeces	19	..
	Urine	20	..
	Agar Culture	2	..
Leprosy	Serum	62	29
Diphtheria	Throat-swabs	2,264	694
Gonorrhœa	Pus	556	62
	Uterine Scraping	1	..
	Child's Clothing	6	..
	Urine	1	..
Syphilis	Blood	529	242
	Smears from Ulcer	2	..
Malaria	Blood	5	1
Meningitis	Cerebro-Spinal Fluid	2	1
Pneumonia	Sputum	5	2
Actinomycosis	Pus	2	..
Ankylostomiasis	Faeces	6	..
Pernicious Anaemia	Blood	6	1
Filaria	Blood	2	..
	Urine	1	..
Papilloma	Urine	1	..
Ringworm	Scales from Skin Lesion	2	..
Malignancy	Tissues	138	..
		17,860	

B.—Statement of Vaccines Made.

Disease Suspected.	Nature of Specimen	Organism.	No.
Autogenous Vaccines	Pus from Abscess	Staph-Aureus	3
	Pus from Ear	Staph-Aureus	2
	Pus from Boil	Staph-Aureus	1
	Pus from Antrim	Staph-Aureus	1
	Pus from Antrim (Acne case)	Staph-Aureus	3
	Pus from Finger	Staph-Aureus	1
	Pus	Staph-Aureus	2
	Urine	Staph-Aureus	1
	Sputum	Staph-Aureus	1
	Discharge from Tibia	Staph-Aureus	1
	Discharge Sinus of Thigh	Staph-Aureus	1
	Pus from Arm	Staphylococcus	1
	Discharge from Uterus	Staphylococcus	1
	Culture from Nose	Staphylococcus	2
	Sputum	Staphylococcus	1
	Hair	Staphylococcus	1
	Pus from Teeth and Gums	Streptococcus	6
	Vaginal Discharge	Streptococcus	3
	Sputum	Streptococcus	13
	Blood	Streptococcus	1
	Urine	Streptococcus	1
	Pus	Coliform Bacillus	1
	Sputum	Coliform Bacillus	2
	Urine	Coliform Bacillus	16
	Mucus from Bowel	Coliform Bacillus	1
	Pus (Acne case)	Staph : Albus	3
	Swab from Ear	Staph : Albus	1
	Nasal Pus	Diplococcus	1
	Sputum	Diplococcus	1
	Pus	Gonococcus	1
	Carried forward		74

TABLE GIVING PARTICULARS OF SPECIMENS EXAMINED AT LABORATORY OF MICROBIOLOGY DURING YEAR ENDED 30TH JUNE, 1914—*continued.*

B.—Statement of Vaccines Made—continued.

Disease Suspected.	Nature of Specimen.	Organism.	No.
	Brought forward		74
Autogenous Vaccines	Pus from Nose	Pneumococcus	1
	Sputum	Pneumococcus	2
	Discharge from Nose and Throat	Bacillus Proteus	1
	Pus from Gums	Diphtheroid Bac.	1
	Sputum	Diphtheroid Bac.	2
	Pus (Acne case)	B. Acne and Staph.	1
	Urine	Staph. and Diph. Bac.	1
	Pus from Abdomen	Staph-Aureus and B. Pyocyaneus mixed	1
	Sputum	Staph. and Strept. mixed	2
	Sputum	Friedlanders Bac.	1
	Sputum	Staph. Strept. and Diplo.	1
	Pus from Hip Joint	B. Cloacae	1
	Pus	Diph. and Strept. mixed	1
	Sputum	Diph. and Strept. mixed	2
	Urethral Contents	Diph. and Strept.	1
	Sputum	B. Pyocyaneus	1
	Swab from Eye	B. Pyocyaneus	1
	Pus from abscess of Lung	B. Pyogenes Factidus	1
	Pus from Loin Sinuses	Staph-Aureus and Diph.	1
	Pus from Lumber Wound	Staph-Aureus and Diph.	1
	Culture from Blood	Staph-Aureus and Albus mixed	1
	Sputum	Staph. and Pneumo. mixed	1
	Pus from Loin Sinuses	Staph.-Aureus, Strept. and Diph.	1
	Pus	Staph-Aureus and Strept. mixed	1
	Sputum	M. Tetragenus	1
	Sputum	Mixed Organisms	1
	Pus (Acne case)	Stock Acne and Staph.	1
	Sputum	Diplo. Pneumoniæ	1
	Pus (Acne case)	Acne Bacillus	1
Stock Vaccine	Acne	B. Acne	1
		Gonococcus	1
		B. Typhosus	1,940 (doses).
	TOTAL		2,049

C.—Miscellaneous.

Disease Suspected.	Nature of Specimen.	Number.
	Discharge for Organisms	5
	Pus for Bacteria	9
	Sputum for Organisms	3
	Sputum for Brass Filings	1
	Blood for Bacteria	3
	Cerebro-spinal Fluid for Organisms	2
	Faeces for Organisms	3
	Urine for Bacteria	3
	Urine for Bilhazia Hæmatobia	1
	Urine for Pus Cells	1
	Urine for Pus and Bacteria	1
	Urine General Examination	7
	Urine for Casts	5
	Blood Leucocyte Count	2
	Foods	20
	Filters	12
	Disinfectants	9
	Water Quality and Quantity Examinations	42
	Stomach Contents	2
Medico Legal	Pieces Cotton Wool for Spermatozoa	3
	Uterine Tissues	2
	Articles of Clothing for Spermatozoa	14
	Sundries	11
		161

APPENDIX C.

REPORTS OF MEDICAL OFFICER FOR ENTHETIC DISEASES.

Enthetic Diseases Dispensary,
30th June, 1914.

Sir,—I have the honour to submit a report on the work done at the Dispensary for Enthetic Diseases during the year ending 30th June, 1914.

The total number of attendances at the Dispensary was 2,886.

New Cases—		
Gonorrhœa—Males	288	
Female	18	
	—	306
Syphilis—Male	66	
Female	2	
	—	68
Both Gonorrhœa and Syphilis—		
Male	23	
Female	1	
	—	24
Total new cases		398

Source of Infection.—In this report I have used the word "prostitute" to deseribe any woman who is aeeredited with having aeeepted payment, but have kept a separate tally of those prostitutes residing in houses whose inmates come up for examination and for those whose address is unknown or who are not regularly examined. The latter I have classed as "street prostitutes." All women who do not reeeive payment have been classed as "non-prostitutes."

A fourth elass has been made of those eases where the souree of infection is unknown (or withheld), and where the infection is stated to have been ineurred outside the area defined by the Aet.

Details of Sources of Infection.—

(1) Prostitutes from houses whose inmates are examined	40
(2) Street Prostitutes	90
(3) Non-Prostitutes (details almost always withheld)	124
(4) Other sources (as above)	144

By the eourtesy of Dr. MeLean, Medieal Superintendent of the Brisbane General Hospital, many eases of syphilis and of severe and eomplieated gonorrhœa have been treated as inpatients at the General Hospital.

Of the eases of syphilis attending the Dispensary, 52 have reeeived treatment by Neo-Salvarsan with immediate good results and without any untoward effeets.

After reeeiving Salvarsan these patients return to the Dispensary and undergo a eourse of mereurial treatment for six months. A Wassermann test is then made and, if negative, treatment is diseontinued, but the patient advised to report himself at onee if any symptoms recur.

The outstanding feature of this year's work is the great disparity in the numbers of males and females treated, which possibly may be accounted for by the fact that the latter fear the publieity of being seen attending the dispensary for treatment.

In addition to the females mentioned in the summary, several prostitutes have been treated either in the Hospital or at the Dispensary, being sent up by the Department of Publie Health. The treatment of these cases is at present on a very unsatisfaetory basis, whieh will, I hope, be improved when the special ward, now in eourse of ereetion, is finished.

My thanks are due to Dr. MeLean and the Resident Staff of the Brisbane Hospital for help and information, and also to the Direetor and Staff of the Laboratory of Mierobiology and Pathology for their eourtesy and promptness in making laboratory diagnosis. I also wish to state my appreeiation of the dispensers at the Hospital and of the work of Nurse Webb, who has been most thorough and effieient, and has shown great tact in many diffieult and unpleasant tasks.

Yours, &e.,

G. P. DIXON, M.B., Ch.M.,
Medieal Offieer to the Dispensary for Enthetic Diseases.

Examination Room,
William street, Brisbane.

Sir,—I have the honour to submit a report on the work done at the Examining Room, William street, from November, 1913, to 30th June, 1914.

The total number of examinations made was	551
New cases	81

Of these 81 women, 43 have at different times been found infeeted and have been treated at the Brisbane Hospital; 21 being in-patients and 22 treated as out-patients at the Dispensary for Enthetic Diseases.

Salvarsan has been administered to five women.

On examination, should any gross lesion be found the ease is immediately sent to hospital for observation and treatment. When the report of the Director of the Laboratory of Mierobiology and Pathology is reeeived, all details are entered upon cards bearing the women's names and any eases deelared infeeted are sent up for treatment.

The eonduct of those presenting themselves for examination has been uniformly good.

Yours, &c.,

G. P. DIXON, M.B., Ch.M.,
Examining Offieer.

The Commissioner of Public Health, Brisbane.

APPENDIX D.

REPORT OF GOVERNMENT ANALYST.

Government Chemical Laboratory,
Brisbane, 28th July, 1914.

SIR,—I have the honour, in accordance with section 31 of "*The Health Act of* 1900," to submit the following report of work done in the Government Chemical Laboratory for the Health Department during the year 1913-14:—

The number of samples examined during the year was 1,651, an increase of over 37 per cent. on the work of the previous year, which was easily the largest on record for your Department.

The work done during the year is summarised in the following table:—

Food or Drug.	Total No. of Samples	Passed.	Failed.
Baking Powder	4	3	1
Beer	20	16	4
Beverages and Cordials	262	179	83
Bread	3	3	..
Butter	5	2	3
Cocoa	2	..	2
Coffee	4	1	3
Colourings and Dyes	19	4	15
Condiments	4	3	1
Confectionery	7	6	1
Cream	4	4	..
Custard Powders	31	9	22
Disinfectants	10	3	7
Drugs and Medicines	31	26	5
Essences	56	39	17
Fish (smoked)	2	..	2
Fish (tinned)	70 (119 tins)	17	53
Honey	9	9	..
Ice Cream	4	1	3
Infants' Foods	15	8	7
Jam	5	5	..
Jelly Crystals and Jellies	22	20	2
Margarine	5	3	2
Meats (potted and others)	11	6	5
Milk (condensed)	16	14	2
Milk (legal samples)	385	328	57
Milk (survey samples)	81	48	33
Milk Preparations	11	7	4
Miscellaneous	62	45	17
Oils—			
Camphorated	28	16	12
Castor	1	1	..
Essential	12	10	2
Olive	28	23	5
Paraffin	15	2	13
Pepper	17	11	6
Sauce	8	4	4
Spices	43	21	22
Spirituous Liquors	132	21	111
Vinegar	19	10	9
Wine	5	5	..
	1,468	933	535
Sunlight Investigation	102		
Water (for potability, &c.)	23		
Water (W. & S. Board)	47		
Water (bore)	11		
	1,651		

The miscellaneous samples include samples of bath salts, beans, beer pipe, biscuits, calculus, cheese, citric acid, dill water, dripping, flours, fruit cake, frostaline, fruit dried, insect and rat poisons, juleptis, lemonade powder, liniment, malt extract, oatmeal, peas, pickles, poultry food, preservatives, salt, sand, satsum, snowpalm, smoke sticks, soup, syrup, tea, tin, toilet powder, and tinned vegetable.

In looking over the above results it will be noticed that over 36 per cent. of the samples received failed for one or more reasons to comply with the requirements of the Act. This is an extremely high proportion, and it must therefore be pointed out clearly that it does not mean that over 36 per cent. of the food supply is adulterated. In some cases, particularly in the case of tinned fish (53 failed in 70) and liquors (111 failed in 132), the samples had been previously submitted to a preliminary examination by the inspectors, and only those samples thought to be of doubtful or bad quality were submitted for analysis; hence the extremely high proportion of condemned samples in these cases. Then again, when there was a suspicion that a certain food or drug was being placed on the market below standard, further samples were taken to stop the sale of such low-quality goods, as, for example, in the case of custard powders (22 failed in 31), essences (17 failed in 56), liquid paraffin (13 failed in 15), spices (22 failed in 43), and vinegar (9 failed in 19). The incidence of the inspection is naturally directed mostly against those articles which are supposed to require most inspection, and the results should therefore be taken to indicate that the direction of the inspection has found the bulk of the fraudulent manufacturers, rather than that over one-third of the foods and drugs are adulterated.

There is another circumstance which makes the statistics of the last few years seem to indicate a decline rather than an improvement in the quality of the food supply. Until the enactment of the recent food legislation, it had been the practically unchecked custom for manufacturers to make notoriously unfounded claims on the labels for their products. It is now illegal to print any statement or device or picture on a label which is false or misleading in any particular. The extent to which the previous practice had grown, even where the articles were of good quality, is shown by the fact that the bulk of the manufacturers have had to issue new labels. The requirement that preservatives and artificial colourings have, unless specially exempted, to be declared when used, also contributed to the necessity for new labels. I have repeatedly had manufacturers protest against having to print the word "Imitation" in conspicuous type on their so-called fruit cordials. They say that the word is objectionable, they have been selling these "fruit" cordials for many years, and people do not care to buy cordials with the word "Imitation" as the first and most conspicuous word on the label. That the word conveys the idea of poorer quality was the reason for its adoption

by the Interstate Food Conference. These imitation cordials may make harmless beverages, but the public must have the opportunity of buying the genuine fruit eordials if they so desire, and the manufaeturer of the genuine fruit eordial must also receive proteetion. Quite a large proportion of the "failed" samples failed not beeause of added "adulterants," but owing to their labels not notifying the presenee of preservative or added eolouring or owing to misleading statements on the label.

Taking all these eonsiderations into aceount, I can safely state that the prineipal artieles of food are in a mueh better state since the passage and enforeement of the modern legislation, but that many lines of less important foodstuffs are still of low quality. The labelling provisions, however, still evidently require several years' strenuous work ere manufacturers, partieularly in the case of patent medicines, are redueed to stating the truth only on their labels and in their advertisements.

Of the total number of samples submitted, 615 had been taken strietly under the provisions of the Aet and are referred to in this report as "legal" samples. The remainder were taken for survey purposes, to get an idea of the state of the food supply, and are referred to as "survey" samples. The following table summarises the results of the "legal" samples:—

Food or Drug.	No. Vendors.	No. Samples.	Passed.	Failed.	Prosecutions.	Convictions.	Fines and Costs.
							£ s. d.
Beer	5	8	8	..	..	..	..
Butter	2	3	1	2	..	..	..
Coffee	1	2	..	2	1	1	8 6 6
Cordials	10	40	14	26	2	2	4 15 0
Custard Powder	5	5	..	5	..	..	..
Fruit Extracts	1	7	..	7	2	2	8 11 6
Jelly	1	1	1	..	..	..	..
Lime Juice	1	1	..	1	1	1	1 9 6
Milk (Fresh)	328	385	328	57	47	46	444 6 8
Milk (Condensed)	2	2	1	1	..	..	..
Mince Meat, Pies, &c.	4	5	4	1	..	..	..
Paraffin (Liquid)	8	8	..	8	6	6	24 0 0
Pepper	4	4	3	1	..	..	..
Pork	1	1	..	1	1	(Not	finished)
Quinine Tonic Waters	3	3	1	2	..	..	..
Spirituous Liquors	50	128	21	107	34	34	138 16 5
Summer Drinks	3	7	7	..	..	..	..
Vinegar	2	2	..	2	1	1	0 8 6
Water	1	1	..	1	..	..	..
Wine	1	2	2	..	..	..	..
	433	615	391	224	95	93	630 14 1

In looking over the various artieles in detail, as usual the most important artiele dealt with was milk. Of the 466 samples of milk reeeived 385 were legal samples and 81 were survey samples. The legal samples gave the following result:—

—	No. Samples.	Percentage of Total.
In conformity with the standard	320	83·1
Genuine samples below the standard	7	1·8
Adulterated with water	47	12·2
Deficient in fat	10	2·6
Unfit for analysis	1	0·3

The use of the freezing-point method enabled the 7 genuine milks below standard to be easily separated from the adulterated milks and thus saved the vendors from a proseeution for adulteration. Five of the samples were only slightly below standard, but the other two were distinetly abnormal and necessitated a speeial investigation of the herds concerned. The results of that investigation will be reported at length in the "Proceedings of the Royal Soeiety of Queensland for 1914." One of these samples was from a herd of two eows, both "drying off," the other was from a herd of six cows, four of them "drying off," one sick, and only one normal. Both samples were abnormally saline, were low in total solids, and slightly below the average in fat. The following are the results of analysis:—

—	No. 4349 (6 Cows).	No. 4353 (2 Cows).
Total solids	11·60 %	11·69 %
Fat	3·86 ,,	3·90 ,,
Solids not fat	7·74 ,,	7·79 ,,
Ash	0·80 ,,	0·776 ,,
Nitrogen	0·492 ,,	0·47 ,,
Freezing point	− 0·55° C.	− 0·54° C.
Chlorine in ash	22·6 %	22·6 %
Ratio $\frac{\text{Ash}}{\text{S.N.F.}}$	10·3 ,,	9·9 ,,

The investigation and analysis of the milk of each of the cows concerned showed the samples to be genuine but abnormal.

The following table shows the position of the milk supply in the localities inspected:—

Locality.	No. Samples.	Failed.	Per cent. Failed.	Average per cent. of added Water.
Brisbane	263	28 (22 watered ; 6 deficient in fat) ..	11	12
Ipswich	9	2 (deficient in fat)	22	..
Mackay	7	5 (watered)	71	23
Sandgate	19	3 (watered)	16	14
Stanthorpe	4	1 (watered)	25	5
Southport	8	4 (watered)	50	11
Toowoomba	42	11 (10 watered ; 1 deficient in fat) ..	26	13
Townsville	9	1 (deficient in fat)	11	..
Warwick	8	Nil	..	..
Wynnum and Manly	16	2 (watered)	12	25
	385	57	15	13

The following table shows the progress of the attempt to get a pure milk supply during the last seven years, the results being those obtained from legal samples taken strictly in accordance with the provisions of the Act so that prosecutions could subsequently be undertaken when necessary:—

Year.	No. of Samples.	No. of Samples Failed.	Percentage Failed.	Average per cent. of added Water.
1907-1908 ..	66	37	56	8·7
1908-1909 ..	158	64	40	10·0
1909-1910 ..	78	19	24	8·3
1910-1911 ..	122	28	23	7·9
1911-1912 ..	265	69	26	12·0
1912-1913 ..	419	60	14	14·0
1913-1914 ..	385	57	15	13·5

In all cases the proportion of added water is calculated from the freezing point, and the more experience that is obtained in the Laboratory with this method, the more reliable we find it. It is beyond all comparison superior to refractometer or electric conductivity methods for accurately determining added water. The only drawback is that a beginner with the method finds it difficult to get accurate results, but experience soon enables the working error to be reduced to $\pm 0.002°$ C. It is now in use in the condensed milk factories in Queensland, and several managers have informed me that it has given them practically perfect control over their milk supply. The "appeal to the cow" has been abandoned in Queensland since the minimum standard was made legal. The minimum standard, which permitted the addition of from 5 to 10 per cent. added water, is now what it should be—only a minimum standard, and milks are judged by the added water and not by a fixed standard of 8·5 per cent. solids not fat. Vendors have recently pleaded guilty to adding water to samples which gave from 8·5 per cent. to 8·6 per cent. solids not fat, with 5 per cent. and 3·6 per cent. fat. Such milks under the old standard would certainly have been passed as genuine.

It is rather noteworthy that the suppliers of milk from the country districts to the metropolis do not seem to practise addition of water. Out of 42 samples taken from the milk cans on arrival at Melbourne Street and Roma Street Stations, only one sample was adulterated with water.

The average composition of the milk samples which have been passed as genuine during the last three years is as follows:—

—	1911-1912.	1912-1913.	1913-1914.
Total solids	12·6	12·7	12·7
Fat	3·9	4·0	3·9
Solids not fat	8·7	8·7	8·8

The financial aspect of milk adulteration in the Metropolitan area, calculated as in previous reports, is much the same as last year, the proportion of adulterated samples being slightly higher and the average proportion of added water just half of 1 per cent. lower. It means that approximately a quarter of a million gallons of adulterated milk were sold during the year. For the added water in that milk the vendors must have received over £3,000—those who were caught had to pay about £212 in fines and costs. It evidently still pays dishonest vendors to take the risk and add the water.

Of the 20 samples of beer received 4 samples contained excessive proportions of preservative. All the samples had been brewed from sugar and malt, and were low in extractives and alcohol. These "light" beers seem to suit the popular taste and to entirely hold the market in Queensland, as against the "heavier" pure malt beers.

The reasons for condemning the 83 samples of beverages and cordials which failed to meet the standards are given in the following table:—

Sample.	No.	Reasons for Condemnation.
Clove Cordial	4	Excessive proportions of salicylic acid and deficiency in sugar
Fruit Extract	12	Absence of fruit extract
Lemon Squash	17	Addition of water and undeclared preservative
Lemon Syrup	11	Absence of lemon juice
Lime Juice	8	Absence of lime juice
Miscellaneous	9	Labels misleading
Peppermint Cordial	7	Excessive proportions of salicylic acid and deficiency in sugar
Quinine Tonic Water	7	Deficiency in quinine
Raspberry Cordial	8	Absence of raspberry juice and excessive proportions of salicylic acid

One pineapple syrup deserves special notice. It was entirely fictitious, containing 2 per cent. by volume of artificial "pineapple" flavouring, a solution of butyric ether in alcohol. The use of this unnecessarily high proportion must have resulted in each "diluted" drink made from the cordial containing about 9 grains of butyric ether.

Of the 5 samples of butter examined, three samples, all from one consignment, contained excessive proportions of boric acid.

Two samples of "malt coffee" consisted of a roasted cereal, and possessed none of the properties of either malt or coffee. Of the 56 samples of essences, 5 were almond, 23 were lemon, 18 were vanilla, and 10 were miscellaneous essences. Of the 23 lemon essences 11 samples failed to reach the required standard of 5 per cent. of oil of lemon. It is strange how many housekeepers buy these cheap inferior essences, as there are at least two brands on the market, one English and one local, which have never been found to contain less than 18 per cent. of oil of lemon. Of the 18 samples of vanilla essence, 13 reached the standard.

In connection with the samples of tinned fish submitted, the contents of the "blown" tins in nearly all cases showed definite signs of decomposition. In one shipment, containing many blown tins, in doing some check work on what looked like sound unblown tins, it was found that many of these contained gas under considerable pressure. Fifty tins, all of similarly sound good appearance, were taken from the shipment, and of these 25 were kept at ordinary room temperature, and the other 25 incubated at 98 deg. Fahrenheit for fourteen days. All the tins were then opened. Those kept at room temperature gave a total of 166 cubic centimetres of gas, and those incubated at 98 deg. Fahrenheit, 237 cubic centimetres of gas, showing an increase of nearly 50 per cent. on incubation for fourteen days. The contents of all the tins were alkaline in reaction, and had a noticeable ammoniacal odour.

Of the samples of honey examined all passed. The following table shows the results of the analyses of 7 of the samples:—

	277	278	279	280	281	282	283
Moisture	13·9	13·4	13·4	13·0	14·5	12·8	13·6
Reducing sugar (as dextrose)	77·0	78·0	78·0	76·0	75·0	77·0	77·0
Cane sugar	2·8	2·30	2·0	2·20	1·00	2·00	1·0
Ash	0·2	0·16	0·24	0·24	0·44	0·28	0·5
Detrin and undetermined	6·1	6·14	6·36	8·56	9·06	7·92	7·9
	100·0	100·0	100·0	100·0	100·0	100·0	100·0
Acidity (as formic acid)	0·07	0·03	0·05	0·11	0·05	0·05	0·06

In the infants' foods an interesting result was found on investigating complaints about the quality of one of the best and most popular brands. The food, which was mainly a preparation of wheat flour, had caused acute gastric disturbance in infants. Nine samples, all evidently of recent manufacture, were examined, and the free fatty acid determined in the fat extracted from each sample. Five of the samples were perfectly sound; four had a distinctly rancid odour.

The following table shows the results obtained on analysis, the results from fresh wheat flour and fresh wheatmeal being inserted for comparison:—

Normal Samples.

—	Odour.	Percentage of Free Fatty Acid in Fat.
No. 606	Normal	23
No. 617	Normal	21
No. 618	Normal	21
No. 620	Normal	22
No. 737	Normal	22
Wheat flour, fresh	Normal	21
Wheat meal, fresh	Normal	17

Deteriorated Samples.

—	Odour.	Percentage of Free Fatty Acid in Fat.
No. 601	Rancid	36
No. 602	Rancid	36
No. 603	Slightly rancid	31
No. 619	Rancid	32

The presence of free fatty acid in the fat extracted from such a food is normal, but there is an increase of about 50 per cent. in the free fatty acid in the fat of the rancid samples. The fat of the rancid samples was abnormal in consistency, odour, and taste, but the food, after the fat had been extracted, was sweet and fresh to taste and smell, indicating that the change had taken place in the fat only. The representative of the firm concerned stated that the trouble had been found to be due to the overheating of the food during preparation, and the whole of that consignment was withdrawn from the market. The fat extracted from an infants' food made by the same firm chiefly from dried milk, was found to be practically devoid of free fatty acids.

It might be interesting to record the following analyses of 11 samples of liquorice powder submitted:—

—	B.P.	256	257	258	259	260
Cane sugar	50·0	30·0	48·0	50·0	47·0	48·0
Liquorice root	16·7	35·0	26·0	20·0	20·0	21·0
Senna	16·7	26·0	12·0	21·2	25·3	22·1
Fennel fruit	8·3					
Sulphur	8·3	9·0	14·0	8·8	7·7	8·9
	100·0	100·0	100·0	100·0	100·0	100·0

—	261	262	263	264	459	463
Cane sugar	43·0	52·0	50·0	43·0	56·0	55·0
Liquorice root	22·0	20·0	17·0	20·0	16·0	16·0
Senna	27·6	19·4	24·1	28·6	20·0	21·5
Fennel fruit						
Sulphur	7·4	8·6	8·9	8·4	8·0	7·5
	100·0	100·0	100·0	100·0	100·0	100·0

Total Ash	5·3	6·5	6·7	5·0	6·6	5·1	6·6	6·7	7·0	5·4	6·0
Acid Insoluble Ash	0·9	2·1	2·4	0·8	1·6	0·8	2·4	2·6	2·5	1·4	2·3

The samples were free from insects. Closer attention to the drugs before compounding would have eliminated most of the coarse sand (included in "acid insoluble ash") present in several of the samples.

Of 28 samples of camphorated oil, which should contain 21.4 per cent. of camphor, 12 samples were deficient in camphor, the proportion in these samples varying between 1.7 and 19 per cent. of camphor. Of 28 samples of olive oil, 3 contained an excessive proportion of free fatty acid, 1 was a mixture of cottonseed and olive oils, and 1 was cottonseed oil. Owing to complaints of the quality of liquid paraffin when the sudden demand arose for it, 15 samples were examined; 13 samples proved to be ordinary "No. 1" and "No. 2" white lubricating oil, and while excellent lubricating oils they certainly did not comply with the British Pharmacopœia standard.

Of 17 samples of pepper examined, 6 samples were found to contain large proportions of rice flour.

Among the 43 samples of spices examined, 34 samples were ground cinnamon. Of these 34 samples 18 were condemned for the presence of sand, which ranged from 2 to 5.4 per cent.

The 132 samples of spirituous liquors which were submitted, after test by the Inspector, as of doubtful or bad quality, were as follows:—

—	No. of Samples.	Samples Passed.	Samples Failed.
Brandy	38	6	32
Gin	6	2	4
Rum	18	3	15
Whisky	70	10	60
	132	21	111

In each case where the sample failed, the failure was owing to the addition of excessive proportions of water, thereby reducing the strength of the spirits below standard. The proportion of added water varied from 2 to 50 per cent.

Of the vinegars, one sample was found to contain sulphuric acid, while another was a spoiled wine and still contained 6·8 per cent. of proof spirit.

One sample of water submitted had been found in use in a refreshment bar for "washing" drinking glasses. It was in a filthy condition, containing sour beer, decaying vegetable matter, ants, flies, &c.

In connection with the water samples for the Water and Sewerage Board, it is noteworthy that the trouble through pollution of the Brisbane River by flooding has been less than usual, while the filters at Enoggera Reservoir are still doing good work in removing the vegetable contamination, which is so marked a feature in all semi-tropical reservoirs.

The sunlight investigation for the American Authorities was finished in October, as the results obtained in the 15 months during which the tests were conducted were considered sufficient for the purpose required.

The large increase in the number of samples was due to the large proportion of "survey" samples submitted. As these samples can be obtained quickly and easily by the inspectors, and, as the analysis does not require to be nearly so thorough or complete as in the case of legal samples, it is only by keeping up a fairly large proportion of these survey samples that anything like proper control of the food supply can be obtained. Mr. S. H. Stroud, A.I.C., arrived in May from London to assist in the Foods and Drugs work.

I have, &c.,

J. BROWNLIE HENDERSON,
Government Analyst.

The Commissioner of Public Health, Brisbane.

APPENDIX E.

REPORT OF NURSES' REGISTRATION BOARD.

Nurses' Registration Board,

9th July, 1914.

SIR,—I have the honour to furnish the following information in the form of the Annual Report for the present year ending 30th June, 1914:—

During the period under review 12 general and 6 special meetings were held, and the following members of the Board attended:—

——	General.	Special.	Total.
Dr. Halford	3	3	6
Dr. McLean	10	6	16
Dr. Ellerton	11	5	16
Miss Hunter	11	5	16
Miss Chatfield	11	5	16

During six months of the above period Dr. Halford was absent on leave, when Dr. McLean filled the position of chairman.

The following registrations were granted during the year by examination (*see* Section 154C (2) of "*The Health Acts*, 1900-1911"):—General, 52; midwifery, 16; mental, 6; total, 74. For the like period the following registrations were approved of by the Minister (under Section 154E of "*The Health Acts*, 1900-1911"):—General, 21; midwifery, 35; mental, 2; total, 58; or a grand total of 132 as compared with 1,401 for last year, but the latter represent all nurses who applied for registration without examination prior to January, 1913, up till when the Board possessed special power to approve of registrations, provided that the applicant was of good moral character and had been previously nursing for a period of three years.

Nurses who do not obtain training at hospitals recognised as training schools are not now eligible to sit for examination, and cannot obtain registration except as provided for by Section 154E, which provides for the Minister dispensing with such of the certificates, examinations, or other conditions for the registration of nurses under the Acts as to him may seem just in favour of any person who, during the three years immediately preceding 1st January, 1912, has been employed in the calling of a nurse.

EXAMINATIONS.

The first examination for nurses under the Board was held on the 5th and 6th of December, 1913, and was followed by another on the 5th and 6th of May, 1914. A Central Board of Examiners was formed, consisting of the members of the Nurses' Registration Board, to which Dr. Dods, Government Medical Officer, and Miss Fetherstonhaugh, Matron of the Lady Bowen Hospital, were added. Examining centres with outside examiners at the places shown hereunder were also appointed, but the latter acted solely for the practical and oral sections of the examination:—

NAMES OF PLACES APPOINTED AS EXAMINING CENTRES.

General.	Midwifery.	Mental.
Brisbane	Brisbane	Goodna
Toowoomba	Rockhampton	Toowoomba
Rockhampton	Maryborough	Ipswich
Bundaberg	Bundaberg	
Townsville		
Maryborough		
Charters Towers		
Mackay		
Cairns		

During the absence of Dr. Halford, Dr. Alex. Marks was appointed in his stead as a member of the Central Board of Examiners.

The following table shows the number of candidates who applied for permission to sit for examination as well as those who actually sat and passed in each section:—

——	General.	Midwifery.	Mental.	Total.
Entered	71	20	63	154
Present at Examination	61	19	63	143
Passed	54	17	51	122

Some of the mental nurses examined had already obtained registration under Section 154D, but subsequently sat for examination on their own initiative.

A general nurse to be eligible to sit for examination must have undergone three years' continuous training in a recognised general training hospital; a midwifery nurse, one year's training in a recognised midwifery hospital; and a mental nurse three years' training in a recognised mental hospital. A nurse must, in addition, hold a certificate for invalid cookery and education.

The official list of nurses registered in the State was published in the *Government Gazette* of the 31st January, 1914.

The Annual Reports from the various recognised training hospitals show that there are 235 general nurses, 17 midwifery nurses, and 78

mental nurses now in training. Particulars as to the number of nurses undergoing training in each hospital at the present time appear hereunder:—

General Hospitals.

Alexandra Private Hospital	3
Brisbane General Hospital	51
Bundaberg	2
Charters Towers	9
Diamantina	22
Gladstone	1
Gympie	5
"Hillcrest" (Rockhampton)	1
Hospital for Sick Children	40
Ipswich	11
"Leinster" (Rockhampton)	2
Longreach	4
Mackay	10
Maryborough	5
Mater Misericordiæ	9
Mount Morgan	10
Rockhampton	13
Rockhampton (Children's)	3
"St. Denis'" (Toowoomba)	2
"St. Helens" (Brisbane)	4
Dalby	3
Townsville	18
Warwick	7
Total	235

Cairns, Chillagoe, Ingham, Roma, Toowoomba — No reports yet received.

Midwifery Hospitals.

Lady Bowen Hospital	10
Lady Chelmsford (Bundaberg)	0
Lady Musgrave (Maryborough)	4
Women's Hospital (Rockhampton)	3
	17

Mental Hospitals.

Goodna	32
Ipswich	23
Toowoomba	23
	78

The list of recognised hospitals was published in the *Government Gazette* of 28th March, 1914.

The total collections for fees, less £10 refunded, amounted to £103 5s. 1d.

The expenditure on badges to date amounts to £183 15s. and £57 12s. 1d. for engraving, making a total of £241 7s. 1d. In addition to these amounts, £56 14s. has been paid as fees to the members of the Board.

The cost of stationery, postage, and incidentals is borne by the Department of Public Health, the staff of which performs the clerical work connected with the Board.

The personnel of the Board consists of Drs. Halford (Chairman), J. B. McLean, H. B. Ellerton, and Miss F. Chatfield. The appointment of Miss Macdonald, Matron of St. George's Nurses' Home, Milton, is now under consideration. Nominations were invited from nurses registered under "*The Health Acts*, 1900-1911," with a view to securing a candidate for the vacancy caused by the resignation of Miss Hunter, but Miss Macdonald being the only nominee to secure the required number of signatures to her nomination paper, a ballot is consequently unnecessary, and that lady, having intimated her willingness to accept office, is now eligible for appointment and has been recommended accordingly for the position. In March, 1915, the term of office of the members of the Board will expire, when an election will become necessary.

The work of the Board since the amendment of the Regulations has been greatly facilitated and, in the absence of any complaints from nurses, it may be claimed that the administration of the Regulations has been carried out in a satisfactory manner. The only difficulty now being experienced is in the location of nurses who continually change their addresses without notifying the secretary, which omission leads to endless trouble and often vexatious delays in supplying nurses with their badges, &c. Should an election of fresh members of the Board become necessary, much inconvenience as well as loss of time and needless expense for postage would result. However, the Board is now considering the question of insisting upon compulsory notification of changes of names and addresses of nurses, who, if they fail to comply with requirements, will disfranchise themselves.

The members of the Board wish to record their appreciation of the work of Mr. L. E. Mellish in the capacity of secretary, who, although a very busy officer, has rendered excellent service at all times, as well as his assistants.

I have, &c.,

A. C. F. HALFORD,
Chairman.

The Commissioner of Public Health, Brisbane.

APPENDIX F.

REPORT OF CHIEF SANITARY INSPECTOR.

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Department of Public Health, Queensland,
Brisbane, 3rd July, 1914.

SIR,—I have the honour to submit herewith the annual statement of the work carried out by the sanitary section of your Department for the fiscal year ending 30th June, 1914.

METROPOLITAN AREA.

As in former years, when the officers in this division of the Department have not been detailed for duty in other parts of the State, the sanitary condition of the Metropolitan Area has received their undivided attention.

The activity in the building trade and the cutting up of large areas of land that have been going on in recent years have created residential suburbs on every hand. Facilities for the removal of household drainage have not kept pace with the movement of the population, consequently complaints are beginning to be more numerous in this connection. This is more apparent in those areas having a constant water supply.

Since the passing of the consolidated "Health Acts, 1900 to 1911," householders can now be prohibited from discharging their household slop water into the street water-channels, as they are no longer defined as sewers. Nevertheless, some of the component local authorities do not seem to be aware of this fact, as this practice still continues unabated. There is a marked contrast in the sanitary circumstances of those areas where the councils have taken action under the new powers conferred upon them by statute in eliminating the insanitary unformed street water-channels that were an eyesore as well as prejudicial to the welfare of the community generally.

DISPOSAL OF HOUSEHOLD DRAINAGE.

The owners of property must now dispose of their drainage upon their own allotments where no sewerage facilities exist for its removal. In numerous instances properly constructed septic tanks have been installed, together with sanitary appliances of a modern description, and little difficulty seems to be experienced in dealing with the tank effluent by means of subsurface irrigation where the ground is of an absorbent nature. On the other hand, leaching pits are extensively used into which all household wastes are allowed to drain, numbers of which have been kept under observation, and the only instances where they have been productive of any nuisance have been when rainwater down pipes or tank overflows have been allowed to discharge into drains connected with them, or where they have been sunk in a clayey subsoil. In such cases lateral septic trenches have been resorted to. This method has also had to be resorted to in low-lying places where the permanent underground standing water is near the surface. A certain amount of judgment is required in placing these pits and trenches to get the best results, and to safeguard the health of the residents as fully as possible under adverse circumstances.

In order to exercise some control over the various types of septic installations that were being increasingly fitted in connection with suites of offices, banks, warehouses, &c., in Brisbane, an Order in Council came into operation in the month of October, 1913, whereby all septic tanks have to be of such a design as will satisfy the requirements of the Commissioner of Public Health. With the advent of the comprehensive sewage scheme for Brisbane and suburbs now under course of construction, the necessity for adopting such methods of drainage disposal as above indicated will cease to exist.

Detailed inspections have been undertaken of all the septic and anærobic installations within the shire of Taringa and of numerous installations within the shire of Toombul and town of Hamilton: these have been the subject of special reports.

VISITS OF INSPECTION.

Two thousand six hundred and ninety-three visits of inspection have been made and fifty notices concerning breaches of the Health Acts and local By-laws have been forwarded to the Local Authorities concerned.

The inspection of all the seaside camping resorts during holiday times has invariably been made by officers of this Department, and matters appertaining to the campers' comfort attended to.

CONSERVANCY SYSTEM.

All the sanitary depôts have been kept under constant supervision. The shire of Enoggera is the last of the suburban areas to fall into line, having only recently entered into a contract for the first time, which commences in the beginning of August.

The following towns and shires dispose of their nightsoil and garbage by burial:—

Balmoral	Duplicate pan
Cleveland	Duplicate pan
Enoggera	Duplicate pan
Sherwood	Duplicate pan
Sandgate	Duplicate pan
Stephens	Duplicate pan
Windsor	Duplicate pan
Wynnum	Duplicate pan
Redcliffe	Duplicate pan
Kedron	Duplicate pan

The other component local authorities not mentioned dispose of this matter by sea burial, the town of Toowong being the only exception, using an incinerator for the final destruction of their sanitary matter.

The manner in which the depôts are conducted leaves little to be desired.

Instructions and advice when given by the inspecting officers are invariably received in a proper spirit by the workmen engaged in this work.

Infectious Disease and Sanitary Disinfection.

The seasonal outbreaks of typhoid fever and diphtheria still manifest themselves within the Metropolitan Area with recurring regularity, and will probably continue to do so until a more modern system of drainage disposal has been inaugurated and the present unsatisfactory conservancy system abolished, together with a daily garbage removal system and the destruction of this effete matter by means of high-power destructors instead of the present system of dumping on low-lying lands, parks, &c., so extensively practised in the meantime, both of which encourage the breeding of flies, one of the worst types of disease-carriers in our midst.

When this system ceases to exist a marked diminution in the incidence of typhoid fever may be looked for.

Coincident with the outbreaks of infectious disease, the disinfecting staff have carried out 1,163 district disinfections. The premises operated on include private premises, schools, railway carriages, and the steamers used for the conveyance of lepers from Northern ports to Peel Island.

A large number of coastal and other vessels have been cyanided and fumigated for the destruction of rats and other vermin at the cost of and request of the owners.

The departmental staff nurses engaged in connection with infectious diseases and kindred work continue to afford advice and instruction to the suffering, and invariably meet with a kindly welcome in the homes of the sick. Their efforts in this direction are bound to have good results.

The outbreak of smallpox in a neighbouring State placed the Department on its mettle during the first half of the fiscal year, and the services of practically the whole staff were concentrated in an effort to prevent an entrance of the disease into Queensland.

Breaches of the Spitting Regulations.

Two prosecutions for breaches of the Spitting Regulations were proceeded with and convictions recorded in both cases, and fines of 10s. with 3s. 6d. costs were inflicted, making a total of £1 7s.

Hygiene Court.

A display of a highly educative and instructive nature was organised during the National Exhibition in Brisbane, and the interest displayed by the visitors leaves little doubt that it created a favourable impression on the minds of the public.

The Exhibit covered a wide range, but owing to an unforeseen shipping delay a completely equipped phthisical sanatoria, including buildings, arrived too late for erection, which was unfortunate, as it would have created much interest in this branch of preventive medicine.

Plague Prevention.

Happily the State of Queensland has been practically free from plague in humans and in rats since the latter end of 1908. This may be attributed to the precautions taken by this Department and the stringent Federal Quarantine Regulations now enforced at the various ports along the Queensland coast, assisted in no small measure by the efforts of the Departmental ratmen stationed at these places.

Twelve thousand and five rats have been destroyed in Brisbane during the year under review by trapping, dogs, &c. Of this number, 9,165 have been sent to the Laboratory of Microbiology and Pathology for examination.

The last infected rat found in Brisbane was in the month of September, 1908.

Eight hundred and twelve lb. of poison have been manufactured by the departmental gang for use within the State, supplies being forwarded to the Northern centres as required and to local authorities carrying on the work of rat destruction. One hundred and twelve lb. of poison have been sold to the public in the form of paste or prepared baits for use on their own premises.

Fifty-one thousand one hundred poison baits have been supplied to the municipalities of North and South Brisbane for the use of their ratmen engaged in rat destruction.

Since the passing of the Noxious Vermin Order, in 1912, the rat destruction gang has become practically self-supporting, the public having to pay for their services.

Active operations have been carried on during the year in the work of rendering premises rat-proof so far as it is humanly possible to accomplish this object.

The gang is divided up into trapping, poison, and working squads, under the direction of an acting inspector, who is also foreman of works.

A block is assigned to each of the inspectorial staff, who makes daily inspections as his other duties permit, and who notes defects and the presence of rats and takes the necessary action to rectify matters, the whole being under my own personal supervision.

An arrangement was lately come to with the various shipping companies and meatworks on the Brisbane River for the eradication of rats on their premises, whereby they have agreed to pay for the services of such men, whose time is wholly devoted to this work. In conjunction with these operations men are constantly engaged baiting the rubble training-walls on the river banks on both sides, as far down as Doughboy Creek, with gratifying results.

The attached summary affords some indication of the amount and nature of the rat-proofing work undertaken by the Department in eradi-

cating rats from premises formerly badly infested. In numbers of instanees the owners of premises on which we have operated have tendered their appreeiation and thanks for eradicating the pest, and eomplimented the Department on the workmanlike manner in whieh the work had been exeeuted.

Attached herewith are photographs showing examples of the work and the harbourage removed. During the course of the year the value of the work done by the working gang amounted to £1,280 13s. 2d.

One thousand eight hundred and ninety-six inspections have been made during the fiscal year in eonnection with rat infestation and 337 notiees of default issued. In numerous instances, after personal interviews by the inspeetors, owners of property requested the Department to carry out the work; eonsequently no notices of default were issued:—

Rat-proofing by Department's Gang.

Cement concrete baffle walls sunk 2 ft. into ground to support embankments where rats formerly harboured	19,523 sq. ft.
Brick baffle walls sunk 2 ft. into ground	772 sq. ft.
Concrete flooring in numerous instances laid between surrounding baffle walls	7,205 sq. ft.
Rubble work supporting footpaths, &c., pointed up with cement compo. and protected with 2 ft. baffle walls sunk into ground and joined to stonework	2,149 sq. ft.
Holes patched up with cement compo. (These include beam filling in, basement cellars, &c.)	2,094
Holes patched with iron on woodwork after rats have been destroyed and other harbourage eliminated	57
Rat harbourage in masonry work of chimneys pointed up with cement compo.	982 sq. ft.
Paling Fencing.—In 7 cases dividing fences were taken down and renewed on top of cement baffle walls	1,521 lineal ft.
Sheds taken down	6
Defective drains affording runways for rats from main sewers—	
Repaired	13
Taken up and relaid	89 ft.
Closets raised	45
Iron sunk 2 ft. deep (old buildings and outhouses)	728 sq. ft.
Surface concreting	414 sq. ft.
Bathroom floors raised	2
Stable floors pulled up	3
Rainwater tanks raised 12 in. off ground to afford cat and dog access under	14
Tanks removed	5
Woodwork of kitchen sinks removed	3
Windows screened	15
Doors ironed on bottom stiles where rats had gnawed their way through into buildings	17
Cast-iron air gratings and air bricks fixed in external face of buildings where rats had egress underneath floors of same	24
Embankments graded down and battered exposing the rock and material used to level up behind baffle walls, &c.	97 cub. ft.

During our operations 265 loads of rubbish were removed and disposed of.

Work Done Privately by Contractors and Others.

Concrete baffle walls, sunk 2 ft. below level of ground	4,729 sq. ft.
Brick baffle walls sunk 2 ft. below level of ground	4,556 sq. ft.
Surface cement concreting	487 sq. ft.
Galvanised iron sunk 2 ft. deep on old premises about to be demolished or undergo alterations	732 sq. ft.
Rubble work—where rats formerly harboured in the loose filling-up material behind same—pointed up with cement compo.	2,127 sq. ft.
Embankments battered down	533 sq. ft.
Concrete flooring (in numerous instances laid between surrounding baffle walls)	1,376 sq. ft.
Closets raised 12 in. off ground so as to afford cat and dog access under same	26
New brick closets built and urinal provided	3
Drains repaired, defects on which allowed egress of rats from sewer	10
Disused drain removed forming a highway for rats from main sewer	1
Loads of rubbish removed	12
Holes blocked up in foundations, cellars, &c., with cement compo.	248
Rainwater tanks raised 12 in. off ground so as to afford cat and dog access under same	6
Notices issued for rat-proofing work and premises since pulled down	7
No. of premises where cases, boxes, and lumber were stacked 12 in. clear of ground so as to afford cat and dog access under same	17
Clumps of bamboos cut down and grubbed out where rats formerly harboured	3
Feed boxes in stable, &c., rat-proofed	11
Stable floors lifted and removed	2
Doors flashed with iron where rats had gnawed through	6
Allotments cleared of weeds	6
Holes screened with wire netting and fanlight protected with galvanised iron	1

Other Parts of the State.

As before mentioned, the outbreak of smallpox necessitated the presence of the sanitary staff in Brisbane in order to effectually cope with the occurrence. Consequently, there has been less opportunity than in former years of the headquarters staff carrying out detailed inspections in other parts of the State. Nevertheless, as occasion arose inspectors were detailed to inquire into local sanitary executive and outbreaks of disease in the districts in which they occurred.

Inspector Cato spent three months on a tour of inspection in the Central district of the State, and excerpts from his report read as follow:—

"In all, approximately 460 inspections of individual premises were made outside the Metropolitan Area, 80 notices concerning breaches of the Act and local By-laws were forwarded to Local Authorities throughout the State. The conditions prevailing at many centres visited truly reflected the lack of interest in sanitary matters shown by the

average Local Authority. . . . In the towns of Bundaberg and Gayndah a marked improvement was noticeable. Up till October last Gayndah did not possess any sanitary service whatever, and the contents of privies were consequently buried about the town in a very haphazard manner by occupiers.

"As far back as December, 1911, the Local Authority was advised to instal a service, and the following month I forwarded to the Town Clerk information respecting the inauguration of a double pan sanitary service, together with an estimate of expenditure for same. The improvement in the appearance of the town brought about by the adoption of the present sanitary service and the consequent supervision over privy buildings is very marked."

Attached herewith is a photograph of a typical earth closet found in use adjacent to a bakery during the tour of inspection.

Two thousand eight hundred and ninety-three visits of inspection have been made to premises in various parts of the State, house-to-house inspection having been made in the smaller centres of population visited.

One hundred and thirteen Blue Notices have been served on country Local Authorities directing their attention to matters of default in sanitary executive.

The conservancy system of all towns inspected is closely inquired into, and where none exist and the population warrant its initiation advice and the fullest information are always tendered. In sparsely populated townships advice and suggestions for the improvement of existing conditions are also given.

The following Local Authorities have been supplied with information of the fullest description concerning the initiation of sanitary services within their respective areas:—Kargoolnah Shire Council, Ravenswood Shire Council, Stanthorpe Shire Council, Howard Shire Council.

Equipment.

During the tours of inspection and inquiries into the occurrence of infectious disease it is invariably found that the Local Authorities in whose area the outbreaks occur have provided no disinfecting apparatus with which to combat the disease. They simply let matters take their course until the public clamour makes them move, when they generally appeal to this Department for assistance, and imagine that if a few stinking drainage puddles and accumulations of refuse have been removed they have got to the root of the matter.

The Department selected and had forwarded disinfecting outfits to the following Local Authorities throughout the State:—Calliope Shire, Eacham Shire, Gayndah Town, Gladstone Town, Hinchinbrook Shire, Livingstone Shire, Lowood Shire, Laidley Shire, Kilkivan Shire, Tinaroo Shire.

One outfit was procured for the Federal Government and despatched to Port Darwin, in the Northern Territory.

Localities Inspected.

Beaudesert.

At the request of this Local Authority an inspection of their area was made as well as inquiry into the proposed drainage scheme for the municipality.

Plans have been prepared by their consulting engineer, setting forth the alignment of drains, &c.

The work also embraces the permanent formation of streets, pavements, and their necessary water channels, which will effect a marked improvement in the town, and which from a sanitary standpoint is much needed.

Calliope.

A house-to-house inspection of this old mining township was made and it was found to be in a fairly clean condition, the sanitary requirements of the residents being attended to per arrangement with a local resident. Earth closets are in general use. The population of this township does not warrant the initiation of a conservancy system for the disposal of nightsoil and garbage.

Coolangatta.

Repeated inspections of this popular seaside resort have been made in consequence of the numerous complaints received by this Department and the apathy shown by the Shire Council in matters concerning public health. The township is growing rapidly in size and importance, and the absence of a proper sanitary service was most apparent. Insufficient public conveniences were provided, those in existence being totally inadequate to meet the needs of the large number of visitors and excursionists who frequent this place.

Departmental action was taken to compel the Shire Council to erect suitable conveniences for both sexes in sufficient numbers in selected positions, similar action being taken in the case of Currumbin Creek and Burleigh Heads, all within the shire of Nerang. Since this action has been taken the Municipality of Coolangatta has been formed. Prior to this the town was thoroughly scavenged under the supervision of an officer of this Department.

Gladstone.

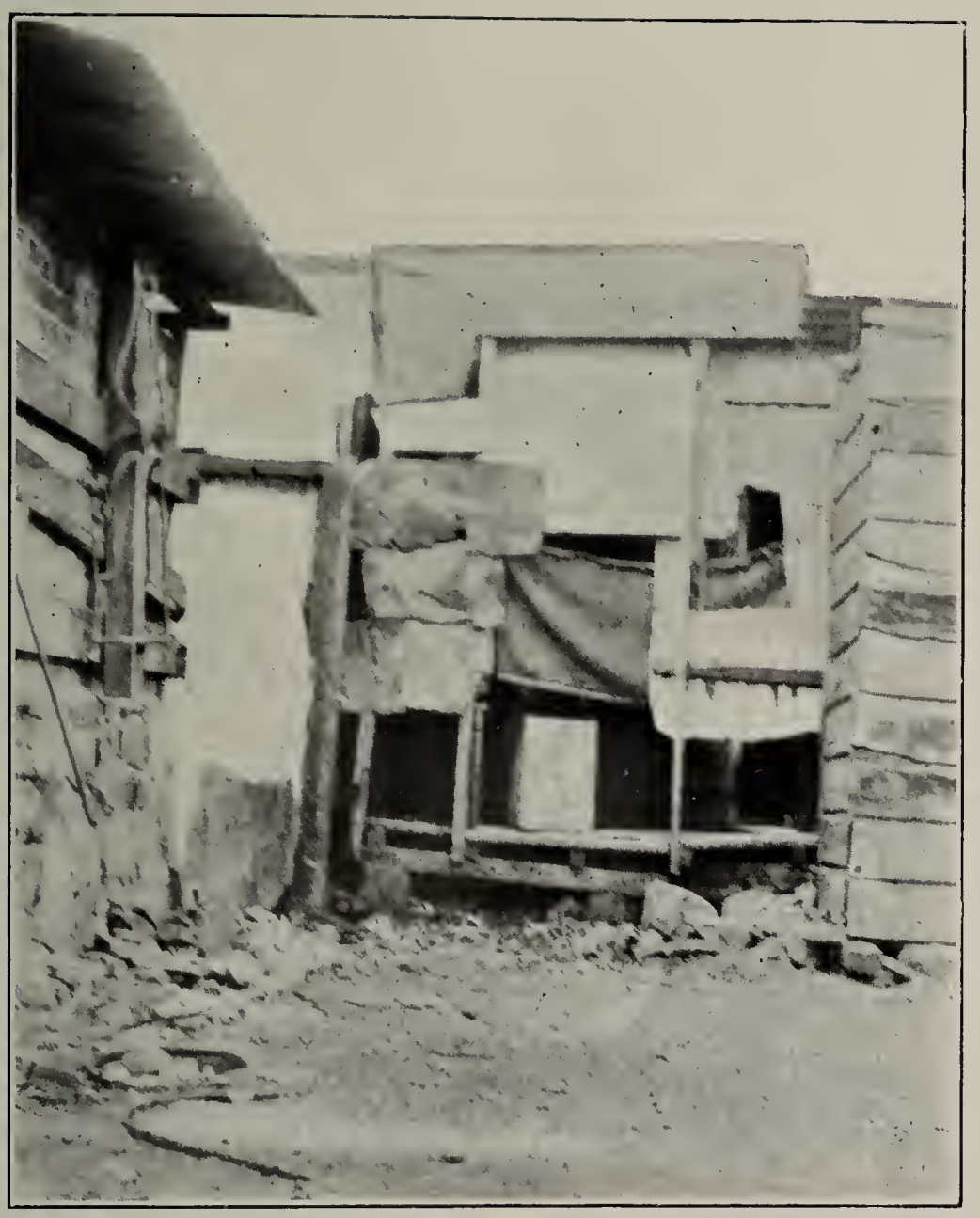
An inspection of this municipality has also been made, but no special comment is necessary on the sanitation of the town. However, the inhabitants are faced with the problem of the installation of an adequate water supply.

Gayndah.

A marked improvement is reported in the sanitary circumstances of this town since the inauguration of a proper conservancy system.

Goondiwindi.

The discharge of household and other drainage into the street water channels of this town has been giving the council considerable anxiety, so also has the alleged pollution of shallow wells by the infiltration of the contents of cesspits into these wells. After much correspondence the Council has been fully advised of the Department's opinion on the matter.



Earth-closet adjacent to a bakery in an important Northern town.

Rats burrowing in made-up ground.

Concrete Retaining Wall constructed to prevent rats burrowing in embankment formed by made-up ground.

Embankment formed by footpath which is undermined by rats.

Concrete Retaining Wall constructed by Rat Gang to do away with rat harbourage under footpath.

Concrete Wall constructed to prevent rats harbouring in embankment.

Howard.

The sanitary condition of this township leaves much to be desired.

In the year 1905 I made a sanitary survey of the town and selected a site for a suggested sanitary depôt. A subsequent inspection was made in 1911 and another site selected, but, so far, no definite action by the Council has been taken.

The situation of the suggested depôt is evidently a source of local friction, and the consequent delay of the sanitary betterment of the town.

The fullest information has been supplied to the council concerning the cost of the initiation of a sanitary service and garbage removal system.

Ipswich.

During the months of July and August an outbreak of smallpox occurred in this town, and an officer of this Department was despatched to supervise the isolation of patients and contacts and the necessary disinfection work in connection with the outbreak.

A tent hospital was erected for the patients' use, and all contacts were housed in the old Immigration Depôt. After the suppression of the outbreak, the tent hospital and contacts' quarters were thoroughly disinfected under the direct supervision of Inspector McNeil.

From time to time the sanitary circumstances of the town have received attention, and special inspection was made of the septic tanks at the Railway Workshops and General Hospital, when I was accompanied by the Local Medical Officer of Health.

Kingsthorpe.

An outbreak of typhoid fever occurred here early in April. A health officer, accompanied by an inspector, was detailed to investigate. The outbreak was attributed to the insanitary conditions prevailing within the township and to the general indifferenee in matters of elementary hygiene.

This has already formed the subject of a special report.

Lowood.

A sanitary survey of this township was made in consequence of an outbreak of typhoid fever. The general sanitary condition of the township was reported to be fairly satisfactory. The usual constructional defects of the earth closets and accumulations of manure were prominent circumstances favourable for the propagation of flies, active agents in the dissemination of typhoid and kindred diseases.

The sanitary service was well carried out, with the exception of the disposal, which was not systematically done.

The contractor was instructed by the visiting officer in the proper methods of burial.

This matter has already been the subject of a special report.

Marmor.

An inquiry into the general sanitation of this township has also been made. Since the last inspection the sanitation of the settlement has improved, and only matters of minor importance require attention.

Many Peaks.

Notwithstanding the repeated requests of this Department, the apathy of this local authority in matters of sanitation still continues, and the township has again been adversely commented on by the visiting inspector.

In matters of sanitary executive things are far from satisfactory. The conservancy system is indifferently carried out. The removal of garbage is not satisfactory. Large quantities of rubbish are tipped into gullies that drain into Deception Creek. The floating population usually found in these mining townships may, perhaps, be responsible for much of the trouble experienced in this direction.

There has not been much judgment exercised in the selection of the site of this township, and little heed was paid to the future sanitary requirements of the inhabitants when this place was chosen, as will be seen by the attached photograph of part of the main street intersected by deep gullies.

The expense attendant on forming streets and setting out a scheme of drainage will cost more than if the town had been built at Nevertire.

Maryborough.

A reinspection of this town was also made during the fiscal year. It would appear from the inspector's report that the same strict supervision is not now being exercised by the council over the carrying out of the sanitary system that formerly obtained. This is to be regretted, as it was customary to point out Maryborough as an example to other Local Authorities as having a satisfactory daylight service.

The removal of garbage and the accumulations of horse litter in stable yards are also neglected.

The discharge of urinal wastes into the street water channels is still allowed to continue, consequently they become most offensive in the absence of adequate flushing and the smell at night is very marked.

Toowoomba.

Early in April of this year and at the request of the Town Council an officer was detailed to supervise the cleansing of a portion of the city. Inspector Dudley, who was intrusted with this duty, made a general inspection of the city at the same time, and reports as follows:—"During my visit to Toowoomba a marked improvement in sanitary matters was noticeable, especially in the collection and disposal of nightsoil, the system now being carried out in the daytime. Formerly this work was done by night and complaints regarding irregularities were of frequent occurrence, whereas the total absence of complaints is now most marked. The contractor attends to his business in a cleanly and workmanlike manner, which I consider is due to day work."

In the beginning of the fiscal year smallpox made its appearance in Toowoomba, which necessitated the formation of an isolation camp for the treatment of patients suffering from this disease. A departmental inspector was deputed to take charge, and he remained there until the beginning of September. Prior to leaving the camp everything was thoroughly disinfected and the camp left in order.

Woodford.

During the year an outbreak of typhoid fever occurred at Woodford. Inspector Burton was detailed to investigate and report.

During the course of his inquiries he learned that the patient had been employed at the Kilcoy Railway Extension.

The premises where the patient resided in Woodford were disinfected by employees of the Local Authority under the supervision of the Department's inspector. Matters of sanitation requiring attention were also dealt with. The next step taken was to inspect the camps on the Kilcoy Railway Extension, when it was found that the Resident Engineer had made satisfactory sanitary provision for the various camps, pan services were in vogue, and the final disposal of the contents carried out by burial in a satisfactory manner. In places where tents were scattered the conditions met with were not so good. It is satisfactory to find that the Railway Department is giving complete attention to the sanitary improvement of these camps.

Wallangarra.

As part of the scheme of operations put into force for combating smallpox, and in an endeavour to prevent its entrance into Queensland, a health officer accompanied by an inspector was stationed at Wallangarra Railway Station on the border, whose duty it was to make a personal examination of all passengers arriving by train from New South Wales, inspect all certificates of vaccination, and issue surveillance forms to all passengers whose papers were in proper order. This duty required their presence there until the end of November.

The tactful manner in which the work was carried out, and the minimum delay of the traffic in consequence, gave general satisfaction to all concerned. An officer was also stationed at the Tweed Heads border on similar duty with like results.

VISITS OUTSIDE METROPOLITAN AREA BY SANITARY INSPECTING STAFF.

1913 and 1914.	Place.	Purpose of Visit.	Inspector.
June ..	Brassall	Vaccination crusade and smallpox outbreak	H. Burton
16 July ..	Brassall	Inspecting sanitary depôt	S. Dudley
1 September	Blackbutt	Inspection and selection of sanitary depôt	H. Burton
3 September	Benarkin	Inspection and selection of sanitary depôt	H. Burton
27 October ..	Bundaberg	Sanitary survey	C. Cato
9 March ..	Beaudesert	Sanitary survey	C. Cato
12 December	Burleigh Heads ..	Inspection of camping grounds ..	C. Cato
13 November..	Corinda	Infectious disease inquiry	H. Burton
22 October ..	Calliope	Sanitary survey	C. Cato
30 October ..	Childers	Sanitary survey	C. Cato
10 December ..	Coolangatta	Inspection of camping grounds ..	C. Cato
3 January ..	Coolangatta	Supervising cleansing operations ..	C. Cato
24-28 March ..	Coolangatta	General inspection and completion of cleansing operations	Chief Inspector
5 August ..	Deebing Creek	Vaccination crusade	H. Burton
2 October ..	Emu Park	Sanitary survey	C. Cato
10 November..	Eidsvold	Sanitary survey	C. Cato
9 January ..	Forest Hill	Infectious disease inquiry	S. Dudley
1 August ..	Goodna	Vaccination crusade	H. Burton
17 October ..	Gladstone	Sanitary survey	C. Cato
6 November..	Gayndah	Sanitary survey	C. Cato
13 November..	Graceville	Infectious disease inquiry	H. Burton
18 November..	Goomeri	Selecting sanitary site	C. Cato
20 November..	Gympie	Selecting sanitary site	C. Cato
1 November..	Howard	Sanitary survey	C. Cato
26 July ..	Ipswich	Smallpox outbreak	W. McNeil
28 July ..	Ipswich	Vaccination crusade and smallpox ..	H. Burton
20 April ..	Ipswich	Overhauling tent hospital	S. Dudley
16 June ..	Ipswich	Inspecting sanitary depôt	S. Dudley
12 August to 7 September	Ipswich	Smallpox outbreak	W. McNeil
6 February ..	Ipswich	Drainage inspection	C. Cato
5 December ..	Kilcoy Railway Camps	Investigation of typhoid outbreaks ..	H. Burton
16 January ..	Kilkivan	Sanitary survey and selecting sanitary depôt	C. Cato
1-2 May ..	Kingsthorpe	Sanitary survey and investigating typhoid outbreak	W. McNeil
5 February ..	Laidley	Drainage inspection	C. Cato
1 and 3 June..	Lowood	Sanitary survey and investigating typhoid outbreak	W. McNeil
30 September	Mount Chalmers ..	Sanitary survey	C. Cato
15 October ..	Marmor	Sanitary survey	C. Cato
21 October ..	Many Peaks	Sanitary survey	C. Cato

VISITS OUTSIDE METROPOLITAN AREA BY SANITARY INSPECTING STAFF—*continued.*

1913 and 1914.	Place.	Purpose of Visit.	Inspector.
24 October ..	Mount Perry	Sanitary survey	C. Cato
13 November..	Maryborough	General re-inspection	C. Cato
25 November..	Nambour	General drainage inspection	H. Burton
9 October ..	North Rockhampton ..	Sanitary survey	C. Cato
6 December..	Neurum Creek	Investigating typhoid outbreak ..	H. Burton
19 June ..	Purga	Inspecting sanitary depôt	S. Dudley
1 November..	Pialba	Sanitary survey	C. Cato
21 April ..	Peel Island	Sanitary inspection of lazaret	S. Dudley
25 September	Rockhampton	General re-inspection	C. Cato
19 June ..	Redbank	Inspection sanitary depôt	S. Dudley
6 October ..	St. Lawrence	Sanitary survey	C. Cato
12 January ..	Southport	Inspection of camping grounds ..	C. Cato
21 February ..	Southport	Disinfection after removal of lepers ..	C. Cato
26 July to 3 September	Toowoomba	In charge of smallpox isolation camp..	S. Dudley
18-26 June ..	Toowoomba	Vaccination crusade and smallpox outbreak	C. Cato
7-18 April ..	Toowoomba	General inspection and cleansing crusade	S. Dudley
6 December..	Villeneuve	Investigating typhoid outbreak ..	H. Burton
4-26 July ..	Wallangarra	Smallpox train surveillance	S. Dudley
26 July to 7 September	Wallangarra	Smallpox train surveillance	S. Dudley
7 September to 26 November	Wallangarra	Smallpox train surveillance	S. Cato
30-31 March ..	Woodford	Drainage inspection	S. Dudley
4 December..	Woodford	General inspection	H. Burton
25-26 May ..	Woodford	Drainage inspection	W. McNeil
29 September	Yeppoon	Sanitary survey	C. Cato
24 November..	Yandina	General inspection and selecting sanitary depôt	H. Burton

JOHN SIMPSON,
Chief Sanitary Inspector.

APPENDIX G.

REPORT OF CHIEF FOOD INSPECTOR.

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Department of Public Health, Queensland,
Brisbane, 1st July, 1914.

SIR,—As Chief Food Inspector I have the honour to submit the following report of the work performed under my supervision for the fiscal year ending 30th June, 1914:—

The work of the Food Inspection Division during this period has consisted in the enforcement of the Food and Drug Regulations, and of those sections of "*The Health Acts,* 1900 *to* 1911," included under the heading of "Food."

The area covered by the Department's officers during the twelve months has consisted practically of the entire State of Queensland, and in the time visits of inspection have been paid to all the cities and to the larger towns upon the main railway lines and their respective branches.

A number of towns situated away from railway systems have been reached by coach and other means.

Over the Metropolitan Area, including the cities of Brisbane and South Brisbane, a supervisory control has been exercised.

Inspections have included within their scope existing sanitary conditions of all premises wherein food is manufactured, prepared, stored, or packed for sale for human consumption, the methods employed in the various processes, the materials used, the finished product itself, the package containing same, and the personal cleanliness of the individuals handling the goods.

STAFF.

The staff of officers employed upon these duties has consisted, as in the previous six months, of one chief food inspector, two senior food inspectors, two food inspectors and one assistant, but at the commencement of the second half-year the force was augmented by the inclusion of an additional officer who was appointed to the Department for special duty in connection with the inspection of liquors.

The above does not include the three inspectors attached to the Northern Office, who attend to both food and sanitary work. Particulars of the former are shown on pages 39 and 40.

SCHEME.

Each one of the officers of the food staff, with the exception of the additional inspector, who has been employed entirely upon liquor inspection, has been engaged upon general food inspection duties in the field, and has, except in special circumstances, worked single-handed in each town or district visited by him upon all lines. That is to say, he has been called upon to perform the special duties of milk sampling, bread weighing, and liquor testing, and the routine work of inspection of stocks, premises, and apparatus at food factories, cold stores, ice-cream factories, bakeries, hotels, general stores, refreshment-rooms, restaurants, ærated water and cordial works, &c., and to scrutinize the general labelling conditions of the food lines put up by each trade.

By these means every known article of food is systematically examined, and those that are obviously unsound, deteriorated, or falsely described are detected and removed from sale.

Unsound and deteriorated food products are dealt with by the inspector upon the spot, excepting in cases where a doubt is expressed by the person in whose possession the food is found.

In such cases samples are removed for submission to the laboratory, and the line held up until such time as results are furnished by the Government Analyst.

Bread Weighing. Inspector and Assistant weighing loaves at a bakery.

Bread Weighing. Showing principal varieties of bread upon the local market.

In addition to these partieular methods, samples of food are purehased offieially for analysis and are obtained unofficially for purposes of investigation.

Specimens of various food products are also, as occasion demands, removed for bacteriologieal examination, and these are reported upon by the Direetor of the Baeteriologieal Institute, Brisbane.

As will be readily understood, extreme care and discrimination is required of inspeetors in carrying out the examination of food lines, for not only the health of the publie, but at times the reputation of a trader, may hinge upon a decision.

It is interesting, however, to note how remarkably expert officers continually handling eanned lines beeome, and how very sensitive their fingers are to the slightest departure from the normal.

As a matter of fact, I have known our inspectors to gauge almost to a nieety the amount of gas present in a tin so slightly affeeted as to be scarcely noticeable to an ordinary observer—the estimate being subsequently verified by the analyst's certifieate.

There are, of eourse, oeeasions when physieal conditions afford no information to the inspector (as in the Norwegian eanned fish investigation to which I shall refer later), and information can only be obtained by ehemieal analysis or bacteriological examination .

It usually happens, however, in such instances that other peeuliarities attraet attention to such lines.

Besides the development of the sense of touch, the inspeetor beeomes remarkably aeute both in taste and smell, and is eonsequently able to note variations in each that are of service in carrying out his work intelligently.

The longer a food inspector remains in the service the more valuable he beeomes by reason of his aeeumulated experience, and for this reason the Department should offer every indueement to retain him.

Areas Visited.

Towards the end of the first month of the fiscal year (July) Senior Inspector Stewart returned from a tour of the Central line, which he worked, together with its branches, from the town of Jericho to the eity of Roekhampton, the first portion of that line, from Longreaeh to Jerieho, having previously been eovered by Inspector Young on his return journey from the North.

During the month of August and portion of September mobilisation duties in connection with the Commissioner's smallpox defenee scheme held the members of the food staff in elose toueh with headquarters, and with the exeeption of Inspeetor Mason, who was despatched to Coolangatta on border quarantine duties, the inspectors were employed entirely within the Metropolitan Area of Brisbane.

In September, when affairs in this eonneetion had resumed their normal aspeet, Senior Inspector Beaver was despatched to Townsville for the speeial purpose of supervising the work of the Northern Staff officers and to open up new ground in the seetion lying between Townsville and Mackay.

In October Inspeetor Young was launched out on an extended tour of the Western line, which he worked thoroughly to Cunnamulla, and afterwards from Charleville, took in the towns of Thargomindah, Adavale, and Augathella and sundry places situated between those towns and Charleville.

In the same month Inspeetor Mason started upon a tour of Bundaberg, Gladstone, and Rockhampton distriets and Senior Inspeetor Stewart worked the railway line between Ipswich and Blackbutt.

Since that time field operations have been aetively continued, and the prineipal towns on the lines south of the above have all been visited by various members of the staff.

Appended will be found tables showing details of the towns visited for the purpose of food inspection and the names of offieers earrying out the work.

In connection with these tours, the following *résumé* of the operations of the inspeetors concerned will serve to indicate the charaeter and method of the work performed, and to furnish an idea of the conditions obtaining in certain areas and trades.

Work in Country Areas.

NORTHERN.

At Townsville Senior Inspector Beaver earried out, in conjunetion with the offieers of the Northern Staff, an inspection of wholesale warehouses, food faetories, and shops, as well as speeial duties in connection with milk sampling and the weighing of bread.

Upon completion of the Northern capital he continued his tour to Ayr, where, with Senior Inspeetor Cottle and Inspeetor Wright, a reinspection of food premises was made.

From Ayr Senior Inspector Beaver travelled to Bowen, at which town he pieked up Inspector Wiseman, of the Northern offiee, with whom he conducted a eomplete series of inspections in connection with food work in the towns of Bowen, Proserpine, and Maekay.

In these three towns, whieh had not previously been visited by the Food Staff, the general eonditions surrounding premises eonneeted with the produetion, preparation, and storage of food lines were found the reverse of satisfactory, but before Inspectors Beaver and Wiseman parted eompany at Maekay a considerable change for the better had been effected in each direction.

Throughout these areas the Department's policy of education and instruction was eontinued, and it is pleasing to reeord that the line of action was appreciated by those sections of the trading community eoneerned.

Ready aequiesence was obtained in the majority of instances, and traders generally evineed a keen desire to comply with the law.

Defects noted by Senior Inspeetor Beaver upon this tour were of the same charaeter and description as those reeorded upon similar premises elsewhere in a previous annual report.

The service of notices requiring correction of these conditions resulted in the desired improvements, structural and otherwise, being effected.

At hotels lead pipes for drawing beer were eliminated, kitchens put right, and all spirits tested.

At ærated water and cordial factories the provision of filters of an approved type was insisted upon as well as the effective protection from contamination, by means of close-fitting covers, of the contents of water storage tanks and syrup containers.

Grocers' stores and other food shops had their stocks overhauled, and those premises requiring same were served with orders to provide means for protection of certain lines from pollution by flies and dust.

So far as liquor inspection in this area was concerned, the principal, if not the only, sophistication detected consisted in the addition of water to spirits over and above the prescribed limits.

In a number of instances the deficiencies recorded by the inspector's hydrometers appeared to be due rather to ignorance upon the part of the hotel proprietors concerned than to deliberate attempt to defraud, lack of knowledge as to correct methods of reducing spirits, as well as the use of unreliable glass hydrometers—set to read at a fixed temperature—being the principal contributing agencies.

As an illustration of the haphazard methods followed in "breaking down" spirits, I would draw attention to a case observed by Senior Inspector Beaver, in which a publican was found using a gin bottle for the purpose. Upon referring to accompanying sketch it will be noted that this bottle bears two labels, one in the form of a polygon and the other of rectangular shape placed underneath it. The system followed was to use the top edge of the bottom label as a gauge for whisky, the apex of the polygon label for brandy, and the junction of the base with the vertical side for rum.

A number of prosecutions for adulteration resulted from this tour, in each of which a conviction was obtained.

These, together with resultant placarding of hotel premises, had a salutary effect.

CENTRAL AND BRISBANE VALLEY LINES.

These areas were covered by Senior Inspector Stewart, who carried out routine food inspection duties at all towns of any importance.

The premises visited include every branch connected with food supply, while the methods followed and lines upon which Mr. Stewart worked are identical with those recorded for the North.

Defects noted were made the subject of notices, which were served upon the spot by Senior Inspector Stewart to the responsible persons.

A detailed list of the towns visited will be found in the tables of inspections appended.

In connection with his inspections of bakehouses in above districts and in the Brisbane Metropolitan Area, Senior Inspector Stewart comments unfavourably upon the use by bakers of flour bags for the purpose of working dough.

Senior Inspector Stewart lays stress upon the assorted uses to which flour bags are put during their life, and enumerates objectionable conditions under which and in which he has found them employed upon occasions.

His conclusions are that flour bags are used principally to save the trouble of cleaning boards, and that, as it is found possible to make bread upon boards in other parts of the world, there is no reason why the method should not be employed here.

He recommends, therefore, that the use of bags for the purpose of making bread upon should be prohibited, and that bakers be compelled to use clean table boards only for such purposes.

NORTH COAST LINE AND TOOWOOMBA DISTRICT.

Upon an extended tour, during the course of which he travelled 4,000 miles by rail, Inspector Mason performed food inspection duties in the principal towns on the North Coast line and its branches.

The city of Rockhampton and the towns of Gladstone, Bundaberg, and Gympie, as main distributing centres for this area, received particular attention at the hands of our officer, who carefully scrutinised all food stocks in the wholesale warehouses at these places.

The work of food inspection was conducted throughout upon the usual lines, while the defects recorded are similar to those observed elsewhere.

At hotels lead beer pipes were ordered to be removed, kitchens brought up to the mark, and all food protected, and at the same time spirits were tested. As in the North, wilful adulteration did not appear to be common, and here as there faulty methods of breaking down and the use of unreliable glass hydrometers were observed.

The bakeries inspected, upon the whole, were satisfactory in structure, and in only two instances was the degree of cleanliness observed at these premises below standard.

In one of these, as the proprietor ignored advice given, a prosecution was conducted and a conviction obtained.

Special cautions were delivered by Inspector Mason to bakers regarding protection of bread during course of delivery.

Stores of every description were visited and a systematic examination of stocks upon the shelves and elsewhere carried out, advice and instructions being given in numerous instances to the keepers to provide adequate protection for such lines as butter, cheese, and bacon.

Restaurants and refreshment-rooms were nearly all open to censure for careless handling of foods and neglect to protect same from flies and dust, and in several instances because of the uncleanly and insanitary condition in which the premises were found. Foreigners were the principal offenders in these respects.

Gin bottle used for reducing spirits referred to on page 38. The method followed was to charge the bottle with water to the required gauge-mark as indicated and then to fill up with the spirit—the contents then being transferred to a decanter for sale in the hotel bar.

Ærated water and cordial factories were found in numerous instances working without filters for water treatment, and the proprietors of such were required to instal same forthwith. Cordial factories generally were found in a fairly satisfactory eondition, but the labels in use at many of them were old and misleading and had to be replaeed.

Upon reviewing Inspector Mason's trip, it is evident that much work of a useful charaeter was performed and a number of reforms aehieved.

WESTERN LINE.

The Western line to Cunnamulla was thoroughly worked from beginning to end by Inspector Young, who afterwards, from Charleville, took in the outlying towns of Thargomindah, Adavale, and Augathella.

The tour throughout was eondueted principally upon edueational lines, but routine food inspection duties were performed at each town visited.

Defeets noted were of the deseription met with in initial inspections of other portions of the State, and Inspector Young employed the usual means of procedure in obtaining their correetion.

Information and adviee was tendered whenever asked for and where eonsidered necessary.

Notices served by Inspeetor Young whilst on tour inelude requests for the provision of filters, elimination of lead piping, proteetion of food from eontamination by flies and dust, provision of adequate water supplies for use in the preparation of foods, discontinuanee of the use of insanitary premises, repairs and alterations to food factories, removal of lead-filling from butchers' ehopping bloeks, discontinuanee of the use of certain labels, &e., &e.

A speeial feature was made of the methods employed by hotelkeepers in the preparation and storage of table foods for guests, and the water used in eonnection with the preparation of food and for drinking purposes at sueh premises.

In reporting upon this Western tour, Inspector Young drew attention to the question of the manufacture of iee-eream and iees in the baekcountry, and stated that in his opinion it would inflict hardship upon many to insist upon the full enforcement of Regulation No. 17, whieh requires the provision of a speeially constructed room in which to prepare these lines.

Inspeetor Young's unoffieial weighings upon the bakers' own seales revealed in a number of cases that bakers were not making due allowanee in scaling off dough.

At the majority of the buteheries visited it was observed that sufficient eare was not being exereised by those in charge in the matter of the applieation of preservative substanees to minee and sausage meat, and that in numerous instanees the proportions permitted by the Regulations were being exeeeded.

Inspeetor Young explains that instead of working to a definite formula most of the butehers were employing "rule of thumb" and adding such substances by guess.

At many butehers' shops it was found that although elaborate preeautions had been taken to protect the front shop portion by means of flyproof gauze, the rear portions, in whieh mincing and sausage-making is usually performed, were entirely unproteeted.

Spirits and liquors vended by hotelkeepers reeeived their fair share of attention, and similar conditions were noted regarding them as in other country distriets.

From beginning to finish the Western journey oeeupied about four months of Inspector Young's time, during whieh that officer travelled by rail and eoaeh a total of 2,880 miles.

As a "pioneer" pure-food tour through a baek-eountry section this journey through the West was of distinet serviee both to the publie and the Department.

NORTH QUEENSLAND.

During the entire year the Department's staff of offieers stationed at Townsville, and consisting of Senior Inspector S. B. Cottle and Inspeetors R. A. Wright and J. G. Wiseman, has operated upon food inspeetion duties in that portion of the State lying north of Maekay and extending westward to Cloneurry.

In addition to their sanitary surveys, these officers have performed routine duties of food supervision in fifty-seven towns situated in the area deseribed and have exereised eontinuous control over the main distributing eentre—Townsville.

The list of towns visited upon food work inelude Alligator Creek, Almaden, Atherton, Ayr, Ayrdale, Balfe's Creek, Bowen, Bowen Park, Brandon, Cairns, Cardross, Cardwell, Chillagoe, Cloneurry, Cooktown, Duehess, Eimes, Eton, Eungella, Euri, Fineh Hatton, Friezland, Halifax, Hambledon Junetion, Herberton, Homebush, Homehill, Homestead, Ingham, Inkerman, Innisfail, Kuranda, Laura, Lueinda Point, Mackay, Malbon, Marabah, Mareeba, Marian, Meeba, Merinda, Mirani, Mosman, Mungana, Nebo, Nelson, Pentland, Pioneer, Port Douglas, Proserpine, Prairie, Ravenswood, Ravenswood Junction, Sarina, Selwyn, Tolga, and Walkerston.

The work earried out at these plaees was of the same deseription as that performed in the more southern portions of the State, as was also the proeedure followed.

The total mileage eovered by the Northern officers amounts to 8,181 miles.

Samples of various foods were obtained for analysis and proeeedings instituted when they were found to be below the required standard.

During the period under review over 5 tons of deteriorated and unsound foodstuffs were destroyed in different parts of the Northern Area.

Milk sampling resulted in seventeen persons being prosecuted for vending adulterated milk, twelve for added water and five for defieieneies in milk fat. The average pereentage of added water was 15·6, and ranged from 2 per eent. to 31 per eent. The average defieieney in milk fat was 14·4 per cent., ranging from 12 per eent. to 18 per eent. defieieney. Total penalties reeovered for milk adulteration amounted to—fines £60 10s.,

and costs, £36 12s. 10d. The average fine works out at £3 11s. 2d. per case, the highest fine imposed being one of £15 10s., and the lowest, £1.

In North Queensland, as in South, the only sophistication of spirits detected consisted in the addition of water over and above the prescribed limits. For this offence nineteen convictions were obtained by the Northern inspectors during the year, and penalties amounting to—fines, £24 6s., and costs, £43 9s. 10d. recovered. The average fine for selling adulterated spirits works out at £1 5s. 7d. and costs £2 5s. 9d. per case taken.

Five cases were instituted against vendors of lightweight bread, a conviction being obtained in each instance. Penalties amounting to—fines, £13 18s., and costs, £9 12s., were recorded, an average fine of £2 15s. 7d.

Six persons were also prosecuted for sundry breaches of the Food and Drug Regulations, all of whom were convicted and fined.

Considering the difficulties under which they have laboured in the matter of transport of samples of perishable food lines, and the fact that they are remote from headquarters and its laboratory facilities, the work of the inspectors of the Northern Staff must be considered highly creditable.

Inspection of Country Districts.

The total mileage travelled by the food inspectors upon country journeys during the year under consideration amounts to 16,608 miles, apportioned as follows:—

	Miles.
Chief Inspector H. W. Petherick	1,710
Senior Food Inspector C. W. Beaver ..	4,332
Senior Food Inspector J. Stewart	3,146
Food Inspector A. E. L. Mason	4,000
Food Inspector A. N. Young	2,880
Assistant Food Inspector R. P. Sanderson ..	540
Total	16,608

North Queensland.

The total mileage travelled by Senior Inspector S. B. Cottle, Inspector R. A. Wright, and Inspector J. G. Wiseman amounted to 8,181 miles.

Metropolitan Area.

In the above area, which includes the cities of Brisbane and South Brisbane, the various officers have continued throughout the year upon the lines indicated in their reports upon country districts and with the same degree of thoroughness. As a result of their labours, considerable improvement is evidenced in food factories generally, and more care is taken by many trades in methods of handling, delivery, and storage of food products.

There are still, however, a large number of factories not in the condition we would desire, and there are also numerous defects existing in the direction of sanitary and ablutionary accommodation for employees, and provision of separate changerooms, &c., for their use, that cannot be corrected until such time as special legislation is passed.

The general clauses in the Food and Drug Regulations are not sufficiently definite or explicit, and their powers are more apparent than real. At a very early date, however, the proposed Commonwealth and States Uniform Standards and Regulations are likely to be considered by the Department for adoption in Queensland, and, when finally issued, these are likely to contain most of the additional powers required.

At one period of the year there occurred in the city a recrudescence of the practice by storekeepers of placing perishable food lines on exhibition outside their shop fronts. A war in prices was the cause of the outbreak, which was finally stopped by a series of prosecutions. At the present time it is the exception to find a trader offending in this direction.

A number of drivers of bakers' carts were also proceeded against for failing to protect bread carried by them upon their vehicles. Convictions were obtained in each instance, and more care is now observed in this particular.

From time to time night inspections have been carried out in order to maintain satisfactory conditions in the retail shops, which are now provided with means for protecting such lines as cheese, butter, bacon, etc., from contamination by flies and dust.

With regard to fruit shops, no action has been taken by the Department other than to require that all lines shall be raised to such a height from the ground that they shall not be accessible to animals. It is quite possible when the new Regulations are issued that the proprietors of such businesses will be compelled to protect their wares from contamination in the same manner as other traders in food products, or at any rate required to keep soft fruits under cover.

A large number of food samples—unofficial and legal—were collected in the Metropolitan Area during the year, and the bulk of the milk samples were obtained from that quarter. Although the Department has secured fairly heavy penalties in a few instances, the fines inflicted by magistrates, on the whole, are not commensurate with the enormity of the offences. Unscrupulous milk vendors, therefore, are not discouraged and continue to take risks. I am of opinion that if a first conviction meant a heavy fine and a second conviction for milk adulteration carried with it imprisonment with hard labour, the practice of adding water to milk would be likely to fall into disrepute.

Liquor Inspections.

The appointment of Mr. Plumb to the Department in February last enabled it to undertake systematic inspection of the spirits vended at hotels in the Metropolitan Area.

Inspector Plumb, who has been employed full time on this duty, has devoted himself with energy to the work and has achieved excellent results during the time.

From the beginning of March to the end of June 131 hotels have received attention at this officer's hands, and all spirits for sale upon these premises have been tested by means of Sike's Hydrometer. Whenever deficiencies in the due strength of any line have been recorded, Inspector Plumb has removed portions under the provisions of Section 102 of the Acts.

LIQUOR INSPECTION. Officer testing strengths of spirits in an hotel bar.

LIQUOR INSPECTION. Officer testing spirits in a bond store.

To date six prosecutions have been conducted against offenders and convictions have been recorded in each case. In two instances placarding of hotel premises was ordered by the presiding magistrate.

A difficult phase of the work to handle has been the substitution of one brand of spirits for another, and at first it was somewhat hard to decide upon our line of action. As the tests have proceeded, however, a valuable set of figures has been collected, which is materially assisting the Department in righting matters. At the present time there is every indication that the trade is exercising a considerably greater amount of caution than heretofore, and that the majority of bottled spirits on sale in hotel bars hold contents true to label.

I submit Inspector Plumb's report:—

"I have to report that I started testing liquors on 7th March, 1914, and up to date I have inspected and tested in 131 hotels. These were mostly in the Metropolitan Area, but I have also visited Goodna, Redbank, Nundah, Oxenford, Coomera, Beaudesert, Bethania Junction, Logan Village, Jimboomba, Veresdale, Waterford, Yatala, Alberton, Tingalpa, Capalaba, Pinkenba, Sandgate, Cleveland, Wynnum, Eight-mile Plains, Mount Gravatt, and German Bridge.

"During the period I reported a number of cases for prosecution. Subsequent action resulted in several convictions being obtained. Two hotelkeepers had their hotels placarded.

"In every case I have reported for prosecution the tests have been very much under standard. I have rendered advice and assistance to several publicans who had only just started and were not experienced. This advice was much esteemed. I have had the most trouble with those publicans who sell 3d. spirits.

"In regard to gin and rum, where they are allowed to break down to 35 u.p., I am of the opinion that they should receive no consideration from the Department.

"In reference to the question of 'True to Label,' I think the greatest evil at present is the fact that in many instances people cannot get what they call for or what they are prepared to pay for. My experience leads me to remark that it is useless to state that all spirits are the same; for certain brands suit certain individuals. Prominent citizens, not members of the trade, complain every day of this aspect of the case."

CONDEMNED FOODS.

As mentioned in the Annual Report for 1913, "The primary function of a food staff is not to destroy food, or to prosecute those who make or sell it, but to secure steady improvement of conditions of manufacture, transit, and sale until the level is reached at which destruction or prosecution will be no longer required in the public interest."

In discussing the question of food condemnation, an eminent American pure food authority lays down the following sound axiom:—"A Public Health Department in the enforcement of food laws is called upon to act with judgment, for its duty should be the conservation of food articles as well as the condemnation of articles unfit for human food."

In these times of high cost of living all articles fit for food should be saved.

When passing judgment upon foodstuffs the Department's officers have constantly kept these precepts before them. The total weight of various kinds of food objected to by the food inspectors and disposed of in a manner to their satisfaction during the twelve months amounted to 20 tons 11 cwt. 17 lb., made up as per appended detailed statement. These figures indicate a much more satisfactory condition of stocks than obtained last year, when the Department's officers were compelled to throw out nearly 150 tons of food material.

On the other hand, it is to be regretted that traders do not exercise more discrimination in stocking certain lines which in a climate such as this will not keep indefinitely, or take precautions whereby perishable goods are so stored as to be protected against extremes of temperature and the ravages of insects and vermin. So far as tinned foods—meat and fish particularly—are concerned, too much emphasis cannot be placed upon the importance of selecting only a cool situation in which to store them.

There is not, in my opinion, the slightest doubt that storage of such goods in shop windows, where they are exposed to the rays of the sun, upon shelves directly under a galvanised iron roof and in the open outside of shop fronts, are responsible for much of the "blown" condition of lines of this description that the inspectors meet with.

Some little time back, when examining the contents of a number of cases of sardines of a reliable brand, I discovered two tins that upon palpation appeared to depart slightly from the normal, the only evidence that they differed from their fellows being a slight "flabbiness" not possessed by the remainder. These two tins, which showed no alteration in appearance, I removed and placed upon a shelf in the office where they were exposed to the sun for a certain period of each day. After being kept there for eight weeks the tins showed signs of bulging, and I then submitted them to the Government Analyst, who returned as follows:—"The tins were blown, the gas content in each tin being 11·5 cubic centimeters. I am of opinion that the samples are unfit for human consumption."

As a rule, the food inspectors do not experience much difficulty in satisfying traders that certain lines of canned foods have reached the stage at which they should be passed out; but upon occasions an individual is met with who differs from their views. As illustrative of the latter type, I would instance the case of a storekeeper who, after making up a pile of canned goods for the rubbish tip, expressed the opinion, previous to the completion of the process, that after all the goods might not be so bad as the inspector imagined, and that as far as he was personally concerned he would not mind consuming the contents of any of them. This man was in-

formed that the Department's officers did not operate on guesswork, but that in order to satisfy him a fair average set of specimens would be selected and submitted to analysis, the remainder to be held up, pending the result of same. This course was followed, and the following results obtained:—

Anchovies in brine.—Blown; containing 16 c.c. of gas; contents completely disintegrated. Unfit for human consumption.

Sardines in tomato.—Blown; 25 c.c. gas, decomposing and unfit for human consumption.

Lobster.—Three tins; 10, 11, and 12 c.c. gas respectively. Decomposed and unfit for human consumption.

Smoked herrings in oil.—Two tins; 6 and 7 c.c. gas respectively, decomposed and unfit.

Herrings and tomato.—Four tins; blown; 48, 67, and 87 c.c. gas respectively; tins badly corroded. Unfit for human consumption.

Mackerel in tomato sauce.—Two tins; 12 and 10 c.c. gas respectively; decomposing and unfit for human consumption.

These results proved conclusively that the lines objected to by the inspector were deteriorated and utterly unfit for human consumption. The owner of the goods was particularly emphatic in the first instance that "anchovies in brine could not possibly go bad, because they are preserved in salt." Upon examination, it was found that the contents of the tin had decomposed into a filthy pulp.

The whole of the stock in question was, without further demur, pierced, kerosened, and dumped at sea.

The goods in this instance were old stock that had been held in a galvanised iron bulk store where the temperature was high.

Another very interesting case was that of the Norwegian kippered herrings, samples of which were obtained by one of our inspectors and submitted for analysis. Here only portion of the tins in a large consignment at a wholesale warehouse appeared to be affected. Specimens of apparently sound and blown tins of the line were taken for examination, the extraordinary feature being that two tins of the samples which were perfectly normal in appearance returned a higher gas content than the obviously "blown" tins. These two specimens had tops and bottoms concave and seemed quite tight on pressing. They yielded gas, however, 19 and 12 c.c. respectively.

Following this experience fifty solid tins were selected from the consignment and submitted by the Government Analyst to a lengthy investigation. All of these tins of fish were finally returned as unfit for human consumption, and the entire shipment destroyed. In this case investigation proved that half of the apparently sound tins, after incubation for fourteen days at a temperature of 98 deg. F., gave an average gas yield of 9.4 c.c. per tin, whilst the other half, stored at ordinary room temperature (about 78 deg. F.) for a like period, furnished an average gas content per tin of 6.6 c.c.

The moral of this investigation is that external appearances cannot always be relied upon.

Of the various other lines detailed in my list, space prevents me saying further than that they were each and all either deteriorated or unsound and consequently unfit for sale for human consumption.

Regarding the tomato pulp, 516 tins of which were destroyed: In this case specimens of the product were submitted to bacteriological examination as well as to chemical analysis. All of the samples of pulp submitted were returned as fermenting and infested with yeast cells and spores, and therefore unfit for consumption.

FOOD EXPOSURE.

Twenty-four cases were taken against individuals and firms for contravening the provisions of Regulation No. 16, Food and Drug Regulations, in the matter of exposing food stuffs of various descriptions to contamination by flies and dust.

Fines amounting to £48 19s. 6d. and costs, totalling £34 18s., were inflicted by the magistrate.

Each and all of the parties concerned had ample opportunity of acquainting himself or themselves with the requirements of the Acts, and in most cases had been warned previously. The only way to straighten matters up was to present offenders at court, and this course apparently has had the desired effect.

BREAD WEIGHING.

Bread weighing was carried out at 118 bakers' premises in the Country and Metropolitan Areas.

One prosecution was undertaken, in which a conviction was secured, and a fine of £9 11s. 3d. and costs, £2 5s. 6d., obtained.

PENALTIES.

During the year under review penalties amounting to—fines, £458 13s. 5d., and costs, £213 6s. 11d., or a total of £672 0s. 4d., were recovered by the Department as the result of prosecutions conducted by officers of the Southern Food Staff for breaches of the Acts and Regulations.

For a similar period last year the total penalties recovered amounted to £507 10s. 2d., made up of fines £430 5s. 2d. and costs £77 5s.

The total number of prosecutions taken against offenders this year were 105 as against a total of sixty-five in the year previous.

It will thus be seen that there has been a decrease in the amount of the average penalty inflicted during the period under consideration and an increase in the costs incurred in handling the cases.

This latter condition has arisen through the increased number of cases defended this year and the expense the Department has been put to in meeting same.

The average fine inflicted per case taken last year amounted to £6 18s. 9d., as against £4 7s. 4d. this year.

The officers of the Northern Sub Office, in the twelve months, recovered total penalties amounting to £200 3s. 4d., made up of fines £104 3s. and costs £96 0s. 4d., an average penalty of £2 4s. 4d. per case taken.

Egg Testing. Inspector operating electric egg-testing apparatus at a retail store.

Overhaul of Stock and Label Scrutiny at a wholesale grocery establishment.

REFUSING TO SERVE AN INSPECTOR.

Occasionally a food purveyor—usually a milkman—elects to refuse to supply an officer with a sample of the article demanded rather than run the risk of being charged with the sale of an adulterated product. Sometimes the verbal refusal is accompanied by a torrent of abuse; at other times the vendor is polite, but firm.

Five cases for obstruction were taken during the twelve months, four against milkmen and one against a publican's servant. In the latter case the inspector's liquor samples were hurled out of a hotel window by the party concerned and the bottles broken.

Under this heading, fines. £20 and costs £10 were obtained, a conviction being recorded in each case.

LIQUOR PROSECUTIONS.

During the twelve months under review fifteen persons have been proceeded against for the sale of adulterated spirits. Eleven of these offences occurred in the Brisbane Metropolitan Area and four in the country districts. The offence in each instance consisted in the addition of water over and above the prescribed limit, and in amounts ranging from 1·5 per cent. to 28 per cent.

A conviction was obtained in each instance and penalties amounting to—fines, £24 10s. 7d., and costs, £38 15s., recorded. In three cases the placarding of premises was ordered by the police magistrate. In one case (adulterated schnapps) notice of appeal against the decision of the magistrate was lodged.

RAGS IN MILK CANS.

The use of rags and other absorbent material for closing the lids of milk cans is prohibited by the Regulations. It is an ancient but exceedingly insanitary practice that dies hard, and the food inspectors have had considerable trouble in stopping it. Occasionally, however, an odd case still crops up, and it is only a few weeks since an inspector caught a man using the extremity of a dirty and well-worn shirt for the purpose of closing the lid of a milk can.

Five milksellers were proceeded against during the year, a conviction being recorded in each case. Fines amounting to £3 8s. 6d. and costs £6 5s. 10d. were recorded.

PROSECUTIONS—DRUGS AND SUNDRIES.

Under this heading are thirteen cases, in each of which a verdict was secured. Total fines amounted to £25 12s. 6d and costs £21 18s. 6d.

Six of these cases were in respect to the sale under the description "Liquid Paraffin" of an article which did not correspond with the requirements of the British Pharmacopœia for that article. As a matter of fact, the product vended under that name was shown by the State Analyst to be nothing more or less than mineral oil of the description commonly used for lubricating typewriters and light machinery. It was stated in court that this stuff, which was sold retail at 2s. per 8-ounce bottle, had been landed at 1s. 9d. per gallon and obtained wholesale by certain of the chemists concerned at the rate of 4s. 6d. per gallon.

In the cases taken against the vendor of an alleged "fruit extract" the product was shown by the Government Analyst to consist entirely of an aqueous solution of citric and tartaric acids, flavoured with artificial ethers and coloured with a coal-tar dye. These lines were retailed at the rate of 1s. per 4-ounce bottle.

The vendors of certain "fruit cordials" were also prosecuted for selling lines which were fictitious and contained none of the product after which they were named, and the vendor of an alleged "ship's lime juice" was convicted and fined for selling a spurious article. Regarding this latter product, for a number of years past in Queensland certain bogus lines consisting for the most part of citric and tartaric acid solutions flavoured with oil of limes have been put up in black bottles bearing a seal and sticker having the letters "H.M.C.," and the device of a ship upon it, and have found a ready sale in the market under the description of "ship's lime juice"—the public, of course, fondly imagining they were obtaining the genuine article. Genuine "Ship's Lime Juice," which is carried by British sea-going vessels in order to comply with the requirements of the "Merchant Shipping Act," is put up in similar containers, but is an entirely different article. The lime juice used as a sea ration is in the first instance examined in the laboratory of the Inland Revenue as to specific gravity, amount of citric acid, and absence of sulphuric or other cheap acids, &c. It is then, under directions of the Customs officers, mixed in bond with 10 per cent. of rum or other spirit and kept in bond until required for shipment. This is a vastly different article to the muck that has masqueraded in this and other States of the Commonwealth for a number of years past under the name of "Ship's Lime Juice." Large quantities of the spurious article have been thrown out by the Department's officers, and it is to be hoped that the last prosecution for its sale sounded its death knell in this State.

The vendor of Malt Coffee, against whom a conviction was recorded and a fine of £5 imposed, described his product as "The Healthiest Food-Drink in the World." This point was not argued, but, owing to the fact that the compound contained neither coffee nor malt, it was considered to be falsely described and adulterated within the meaning of the Acts.

MILK PROSECUTIONS.

Forty-two persons were proceeded against by the Department during the year for vending adulterated milk, and convictions obtained in forty-one instances. The odd one escaped on a legal technicality. Fines amounting to £312 6s. 8d. and costs totalling £102 18s. 6d. were inflicted by the magistrates before whom the cases were heard.

In thirty-three out of the forty-one cases the freezing point test demonstrated conclusively the presence of added water in proportions ranging from 3 per cent. to 38 per cent, whilst in eight cases the samples were deficient in milk fats to the extent of from 13·3 per cent. to 25·9 per cent. This latter condition has been found to be due almost entirely to want of complete stripping when milking, in order to leave a supply for calves, an indirect form of adulteration the Department is desirous of putting a stop to. In no single instance was the analyst's certificate disputed.

The lowest penalty recorded was a fine of 5s., the highest £25. Two fines of £20 and eleven fines ranging in amount from £10 to £20 were inflicted. The average fine imposed works out at the rate of £7 12s. 4¼d. per case.

Of the total number of legal milk samples submitted to analysis, 15 per cent. failed, the average amount of added water working out at 13·5 per cent.

FOOD SAMPLING.

During the period under consideration 1,463 food samples were obtained by the food inspectors and submitted to the Government Laboratory for analysis. Of this total 580 were official samples, purchased or removed under the provisions of the Health Acts, while the remainder were informal samples obtained unofficially for investigation purposes. These samples, which cover a wide range of food material, are shown in detail in appended lists.

As the analytical results will be discussed by Mr. Henderson in his report, I do not propose to touch upon that aspect here, but when the percentages of passes and failures are receiving consideration it will be well to bear in mind that the word "adulteration" has a broader significance and more extended application under the modern food law than it possessed under the old State enactments. Most people imagine that to be adulterated a food or drug must be falsified by the addition of baser ingredients that are likely to cause injury to health or rob it of its nutritive value. While this interpretation may fit in with the dictionary definition of the term, it is not in this sense alone that the word is applied in the administration of food and drug regulations, for under the Health Acts we find a food or drug or article is deemed to be adulterated for a variety of reasons.

Upon perusal of section 90 of the Health Acts, 1900-11, it will be seen that for the purposes of the Acts adulteration covers a large number of practices, some of which are fraudulent, others technical in character. Some of the forms enumerated are likely to injuriously affect the health of the consumer, others again affect principally his pocket. On the whole, therefore, the economic significance of the Acts and Regulations is as prominent as the sanitary aspect, and the public are protected in both directions.

Finally, I would direct attention to the fact that the percentage of food and drugs reported by the Government Analyst as adulterated does not mean that this is the actual percentage of all foods upon the market that are adulterated, as the samples handled by the Government Analyst were collected mostly from suspicious sources, but only the ratio of adulteration of foods and drugs examined in the Government Laboratory. In the case of spirits, for instance, 98 samples of which were submitted to analysis, each one of the specimens had previously been tested by an inspector and found deficient in strength before removal of the sample from the premises on which it was located. The Department does not proceed upon an officer's hydrometer readings, for the reason principally that allowance cannot be made for obscuration by this means. In order, therefore, to avoid the possibility of an injustice, the specimen in question is submitted to the Laboratory for complete chemical analysis, and proceedings, if necessary, are taken upon the analytical certificate received.

Obscuration, as a rule, is higher in rum and brandy than whisky and gin, but it has at times been met with to a considerable extent in whisky. From one hotel a sample of whisky which gave a hydrometer reading of 31·2 under proof was removed by the inspector and submitted to the Laboratory. A direct hydrometer reading with a standard instrument furnished a return of 31·6 under proof, but subsequent analysis revealed obscuration 4·8, extract 1·4 per cent., so that the certificate finally returned the spirit as being 26·8 under proof.

LABELLING.

"*The Health Acts,* 1900 *to* 1911" require that there shall be supplied on or attached to every package of food packed or enclosed for sale a label indicating the name or description, the net weight or number or true measure or volume of the contents thereof, and the name and address of the vendor or maker of such contents, or of the agent thereof, or of the owner of the rights of manufacture. The Food and Drug Regulations require further that "the trade name and description and descriptive matter written on the statement or label attached to any package which contains a food or drug shall not contain any statement, claim, design, device, fancy name or abbreviation which is false or misleading in any particular concerning the articles or the ingredients or substances contained therein, or concerning the quality or the place of origin of the said ingredients or substances." Plain labelling is what the Department has been endeavouring to secure since the Food and Drug Regulations came into operation, but although this requirement seems simple in theory, it is by no means easy to put into practice.

Label designers and traders generally have had so free a hand for years past that it has been a difficult matter to bring them back from the realms of fancy to face the simple requirements of the existing code. The Department has, however, endeavoured to secure adjustment upon reasonable lines, and at the same time to make plain that the object of the Regulations is to secure the presentation to the public of foods and drugs under names which really indicate the contents of the package.

During the entire year I feel safe in asserting that there has not been a day on which the Department has not been consulted upon some phase or other of the labelling question, and the points raised have at times been so important as to require considerable time and study in order to arrive at a just decision regarding them.

The Department has extended every possible consideration to the trading community in the matter of old stocks of labels which, when not grossly misleading, have been allowed time to run out. It has, however, insisted that fresh labels shall conform with the requirements of the law. Numerous battles have taken place during the year on the labelling question between the Department and various firms in the Commonwealth and Europe, and upon occasions visits have been paid to Brisbane by representatives of the oversea and Australian firms concerned for the sole purpose of discussing the issues.

Milk Sampling. Officer purchasing from a vendor on the city outskirts.

Milk Sampling. Inspector applying official seal to the bottles; Assistant entering up particulars.

At the present time, I am pleased to be able to report a marked improvement over previous conditions, and that there is every indication of still further progress in the direction of obtaining straightforward descriptions upon packages of food and drugs being made in the State during the forthcoming year.

In connection with certain aspects of the labelling question, a clause of the Health Acts which has been of considerable value to the Department is section 113, which provides that "No food sold under any fancy or suggestive or proprietary or registered name, which is a substitute, or is intended to be, or may be used as a substitute, either wholly or in part, for any food, shall by reason only of being so sold under such name be exempt from this Act." This particular section was applied in the case of an imported spirit resembling rum in appearance, taste, and smell, and described as "Zamaika," that came under the Department's notice some time back. The Government Analyst reported the product as being an imitation rum. Regarding this fictitious spirit, it was held that it was intended to be used as a substitute for rum, the finer qualities of which are distilled from cane sugar, principally in Jamaica. That the word "Zamaika" had been coined in imitation of the name Jamaica, a name which applied to rum is a distinctive appellation distinguishing that spirit from any other product. And, further, that the word "Zamaika" gave a false indication of origin, character, or place of manufacture of the product, and that its application was calculated to convey by suggestion that it was another food product. Upon the Department's representation the line was shipped away from this State.

SPECIAL INVESTIGATIONS.

During the year under review, in addition to their routine duties, the officers of the food division have conducted, on behalf of the Department, a number of investigations of a special character. These have included: Methods of filtration and treatment of water used in certain food manufacturing processes, storage and conditions of certain lines of infants' foods, storage and delivery of ice, the use of colouring matters in beverages and confectionery, methods of manufacture employed in bakeries, loss of weight of loaves after baking, and the preparation and storage of yeast, the actual capacity of certain containers of reputed capacity, &c.

A vast amount of useful information that is likely to assist the Department in administration has been obtained as a result of these inquiries, and many important reforms have been achieved thereby. So far as water supplies are concerned, all beverage makers are now employing approved methods of filtration previous to bottling, and no filters are in use that have not been approved by the Department. The examination of filters at the Bacteriological Institute consists (1) of an attempt to estimate the percentage of purification produced in running tap water through the filter, and (2) an attempt to estimate how long the filter is capable of keeping back a known organism (usually *B. prodigiosus*). No filter is approved unless it produces a satisfactory purification in tap water and keeps back a known organism for 72 hours. An interesting point was raised by certain spa water manufacturers to the effect that the passage of their product through a filter removes portion of its natural mineral qualities, especially salts of lithia. In order to satisfy them two specimens of spa water were obtained direct from the spring, one of which was submitted direct to the laboratory for chemical analysis, and the other first filtered through a candle of approved type and then submitted to analysis. As was anticipated, the result the Government Analyst showed was that the only effect produced by the candle filter was the removal of matter in suspension, and that the dissolved solids were not affected. The method which heretofore obtained with spa water bottlers of running their product through a charcoal filter or cloth strainer previous to bottling has been ordered to be discontinued, and a filter of approved type substituted for the purpose.

Investigation as to the actual measure of contents of bottles of spirits upon the local market which had blown upon them the words "imperial quart," revealed the fact that nearly all of such containers held less than 40 fluid ounces. Of a total of twenty-four oval whisky bottles examined at one place, not one of the measurements gave a contents of 40 ounces. The average capacity of the two dozen bottles being only 38·2 fluid ounces, and in two instances the measure dropped to 37 ounces. In one instance an oval "Imperial Quart" bottle was obtained that held only 35 fluid ounces. Upon the Department's representations all faulty bottles were withdrawn.

The Regulations do not require the measure of contents of spirit containers to be stated thereon, but if stated the declaration must be correct. The Department has since been advised by the manufacturers that they are now supplying plain bottles to their Queensland customers and are taking special care to see that the bottles average 40 ounces.

COLOURING MATTERS IN FOODS.

Under the heading "Harmless Colouring Matters" in the Food and Drug Regulations is a list including caramel, cochineal, saffron, chlorophyl, and every innocuous vegetable colour extractive, together with a list of seven coal tar dyes, each of which is admittedly harmless. Whenever a food substance examined by the Government Analyst has been reported as containing a dye which is not included in the list action has been taken by the Department to have the line removed from the market. In the majority of cases manufacturers whose attention has been called to defects of this nature have taken steps to substitute one of the permitted colourings for that objected to, but occasions have arisen where makers have insisted that the pigment employed by them, although not included in the list, is yet perfectly harmless. As a rule, the objectors are unable to advance anything further in support of their contentions than statements supplied them by the makers or distributors of the colours, to the effect that they are perfectly harmless and safe to use, supported sometimes by the certificates of an analytical

chemist residing in remote quarters of the globe. In no single instance, however, has a manufacturer been able to furnish the Department with direct evidence, based upon comprehensive experiments, that the colouring he is using is harmless in its physiological action, and until such evidence regarding a colour intended to be used in food is produced it is not possible for the Department to include it in its list as harmless.

Certain manufacturers urged that the list included in the Queensland Food and Drug Regulations is not sufficiently comprehensive, and that they suffer from no such restrictions in the Southern States. This may be so at present, but it is well to note that the Uniform Standards for Food and Drugs, to which the accredited representatives of all the States as well as the advisers of the Commonwealth in relation to the Commerce Act subscribed in June, 1913, and which are likely to become law throughout Australia at no very distant date, prescribe a list of harmless colouring matters almost identical with that at present in existence in this State. It would appear, therefore, unless the list of colouring matters contained in the Uniform Standards is extended in the meanwhile, that when the new law comes into effect manufacturers will have the same position to face in the Southern States that they have in Queensland to-day.

So far as cordial and beverage makers are concerned, no complaints have reached the Department that the list of permitted colourings is not sufficiently comprehensive, and the majority of makers of pudding powders, jelly crystals, &c., appear to be able to keep within it. The confectionery trade, however, feels that it is too restricted, and desires the list extended. With this end a deputation of local manufacturing confectioners waited upon the Commissioner a few weeks back, and afterwards submitted a list of colours and a range of samples of same they desire included.

Regarding the list of dyes contained in the Food and Drug Regulations under the heading "Harmless Colouring Matters," a point that requires emphasising is that among them are none which are patented, so that their manufacture is open to all.

PRESERVATIVES.

The Food and Drug Regulations prohibit the addition of a preservative substance to any article of food, except as specifically permitted by the Regulations, and specify the names of the substances deemed to be preservatives for the purposes of the Regulations.

Not more than one kind of preservative substance is permitted to be added to any one kind of food nor to any mixture of two or more kinds of foods.

The Regulations, however, require declaration in the principal label attached to every package containing any food mixed with a preservative of the fact that it is preservatised, together with the chemical name of the substance used and the amount in which it is present.

For the purposes of the Regulations, saccharin is included in the list of chemical preservatives, and the presence of that substance must also be declared upon the package of any food containing it.

Careful examinations of the principal food lines have been conducted throughout the entire year in order to see that the requirements of the Regulations in this particular were being complied with, as the result of which it has been evident that food manufacturers generally have confined themselves to the permitted substances when employing preservatives in their processes.

Upon the question of the proportion in which some of the permitted preservatives have been present in various food lines, analysis has at times revealed carelessness upon the part of manufacturers and a tendency to be somewhat liberal in their application.

Wherever the maximum permitted proportion has been exceeded, even to the slightest degree, cautions have been administered and further samples taken to note whether the advice given has been followed.

In every such case matters have been found put right, and more care exercised in preparation.

Regarding saccharin, a substance several hundred times sweeter than sugar and comparatively cheap, which was as one time freely used in the manufacture of beverages, the addition of this substance is permitted now only in non-excisable fermented drinks in proportion not exceeding 2 grains to the gallon, and then only under declaration.

I have heard numerous individuals express the opinion that the attitude of Health Authorities towards saccharin is unreasonable, as, even though it does not afford nourishment, it exerts no ill-effects.

This is not the conclusion arrived at by the Referee Board of Consulting Scientific Experts which in the United States some few years back conducted an investigation as to the effect on health of the use of saccharin.

It was reported by this Referee Board that the continued use of saccharin for a long time in quantities over three-tenths of a gramme per day is liable to impair digestion; and that the addition of saccharin as a substitute for cane sugar or other forms of sugar reduces the food value of the sweetened product and hence lowers its quality.

At that time, in the United States, the presence of saccharin was demonstrated by the Bureau of Chemistry in more than fifty kinds of foods, a fact which goes to show that if the unrestricted use of saccharin in foods be allowed the consumer may very easily digest day by day more than the quantity shown by the Board as liable to produce disturbance of digestion.

Water Filtration. Inspection of an overhead filtration plant at an ærated-water and cordial factory.

Water Filtration. Interior of above works. Inspector examining a battery of filter candles.

Coffee Stall and Pie Factory. Snapshotted by one of the Department's officers in the "back-blocks."

Ice-cream Factory. An underground and insanitary factory that has been thrown out of action since the Food and Drug Regulations came into force.

ADVERTISED ARTICLES.

Section 94 of "*The Health Acts,* 1900 *to* 1911," confers upon the Commissioner power to cause to be examined any food, drug, or article for the purpose of ascertaining its composition, properties, and efficacy, and to compare the results of the examination with any advertisement which related to such food, drug, or article and with the price at which it is sold.

This section further empowers the Commissioner to prepare and forward to the Minister a report upon the whole matter, which may include any comment which the Commissioner thinks desirable in the public interest.

An article that was dealt with under this clause was an apparatus offered for sale in this State in the form of an electric filter. A specimen of this alleged electric filter was obtained and submitted to the Laboratory of Microbiology and Pathology for examination. In due course the following report was received from Director Dr. John J. Harris:—"I have the honour to report the result of the examination of the 'Electric Filter and Steriliser.' In the pamphlet supplied, the filter is said to sterilise the water through the generation of an electric current, brought about by the friction of the water passing through the filter. In answer to this claim, I would point out that the electric current itself has no direct influence on bacteria. Any influence a current has is through the heat it generates or through the breaking up of elements and the production of bactericidal salts. To test the action of the filter 2 gallons of water were loaded with the *Bacillus prodigiosus,* and then passed through the filter. Specimens of the water were taken before being passed through and while being passed through. From those specimens known quantities were taken to inseminate melted agar tubes, which were then plated and incubated at 37° C. The plates were counted after 24 and 48 hours' incubation. The following are the results:—

	Organisms per c.c. after Incubation at 37° C.	
	24 Hours.	48 Hours.
Water before filtration	19,490	23,000
Filtered Water taken soon after water began to flow	18,435	22,050
Water taken about the middle period of flow	18,955	22,680
Water taken towards the end of flow	20,455	23,310

Conclusion is that this filter is useful only as a coarse strainer, and that as a filter or steriliser it is a barefaced swindle."

Upon the result being communicated to them, the agents for this article forthwith ceased selling or advertising it, and wrote to the manufacturers requesting them to take back remaining stocks.

CONCLUSION.

In concluding this general summary of the work for the year I append, together with tables, a series of photographs taken by Inspector A. N. Young, illustrative of the various phases of the duties of the Department's food inspectors.

At the same time I desire to place upon record an appreciation of the loyal support I have received from the officers of the division, and of the unflagging energy and keen interest they have displayed at all times in the performance of their duties. It has been a real pleasure to work with them and with the chemists of the Laboratory, of whom the Government Analyst, Mr. J. B. Henderson, and the State Analysts, Messrs. T. McColl and L. A. Meston, have been ever ready and willing to afford the food staff the benefit of their advice and experience.

I am, &c.,

H. W. PETHERICK,
Chief Food Inspector.

RECAPITULATION.

Class of Premises.	INSPECTIONS.			Remarks.
	Primary.	Re-inspection.	Total.	
Bakehouses	312	4	316	Includes Cake and Biscuit Factories and Bread Weighing
Butchers	96	..	96	Includes Small-goods Rooms and Meat Works
Beverage Factories	258	23	281	Includes Breweries, Aerated Water and Cordial Factories
Chemists' Shops	10	..	10	Includes Wholesale and Retail Establishments
General Stores	324	10	34	Includes large and small Grocers, etc.
Hotels	463	75	538	Includes Town and Country Clubs (Liquor Testing)
Markets	17	14	31	Includes Fish, Fruit, and Vegetable Markets and Cold Stores
Refreshment Rooms	430	27	457	Includes Fruit and Confectionery
Restaurants	126	..	126	Includes Fish and Oyster Saloons, and Boarding-houses, Pie Stalls
Special	117	..	117	Includes Auction Rooms, River Wharves, and Night Patrols
Warehouses	52	1	53	Includes Bond Stores and Wholesale Distributors
Food Factories	141	11	152	Includes Meal Mills, Condiment Preserving, Curing, Canning, and Confectionery Works
Milk Shops	79	..	79	Includes Dairies, Milk Carts, and Shops
	2,425	165	2,590	
Total number of premises visited by Northern Staff Officers upon food inspection	..	..	2,306	
	Grand Total ..		4,896	

Notices Served.—During the twelve months 279 notices requiring correction of defects at food factories and shops were served by the food inspectors, and 280 orders issued from the office.

FOODSTUFFS CONDEMNED AND DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Article.	Quantity.		Weight. Tons	cwt.	qr.	lb.
	B.—Country Area.						
1	Arrowroot	1	packet	0	0	0	1
2	Apples, Evaporated	2	parcels	0	0	0	22
3	Almonds	1	parcel	0	0	0	5
4	Baking Powder	55	tins	0	0	0	22½
5	Cheese	17	jars	0	0	0	8½
6	Cordials, Assorted	191	bottles	0	3	1	23
7	Confectionery	7	parcels	0	0	0	20
8	Cocoa and Milk	3	tins	0	0	0	3
9	Coffee and Milk	41	tins	0	0	1	13
10	Coffee, Ground	6	tins	0	0	0	6
11	Curry Powder	45	tins	0	0	0	11
12	Chutney	11	bottles	0	0	0	11
13	Cornflour	57	packets	0	0	2	2
14	Crab	26	tins	0	0	0	26
15	Dates	5	cases	0	2	0	23
16	Dates	75	parcels	0	0	2	14
17	Dripping	1	tin	0	0	1	12
18	Egg Substitute Powder	429	tins	0	1	2	23
19	Egg Substitute Solution	136	bottles	0	0	0	8½
20	Essences	261	bottles	0	0	0	24
21	Figs	46	boxes	0	0	1	17
22	Fruit, Canned	94	tins	0	1	2	22
23	Fish Balls	2	tins	0	0	0	2
24	Fish, Canned, Assorted	167	tins	0	1	0	20
24A	Fish (Herrings and Tomato Sauce)	463	tins	0	4	0	15
25	Fish (Herrings)	466	tins	0	2	3	2
26	Fish (Sardines)	3,672	tins	0	9	3	5
27	Fish (Salmon)	104	tins	0	0	3	20
28	Flour, Self-Raising	6	packets	0	0	0	12
29	Groats	13	tins	0	0	0	13
30	Honey	1	bottle	0	0	0	1½
31	Jam, Assorted	214	tins	0	3	1	13
32	Jelly Crystals	7	parcels	0	0	0	3½
33	Lobsters	75	tins	0	0	2	19
34	Lemon Peel	1	parcel	0	0	0	2
35	Milk, Condensed	112	tins	0	1	0	0
36	Mustard	30	tins	0	0	0	25
37	Macaroni	6	parcels	0	0	0	6
38	Meat (Fitzroy Beef)	1	tin	0	0	0	1
39	Nutmegs	4	parcels	0	0	0	9½
40	Oysters	2	tins	0	0	0	2
41	Oil, Salad	23	bottles	0	0	0	8
42	Peaches, Dried	9	parcels	0	0	1	17
43	Prunes	10	cases	0	5	0	0
44	Pepper	267	tins	0	0	3	10
45	Pickles	52	bottles	0	0	2	20
46	Potatoes	1	bag	0	1	0	0
47	Salt	7	packets	0	0	0	7
48	Sauces, Assorted	68	bottles	0	0	1	23
49	Soup, Canned	10	tins	0	0	0	5
50	Sultanas	54	parcels	0	0	1	26
51	Sugar	2	parcels	0	0	0	17
52	Tongues, Sheep	7	tins	0	0	0	7
53	Tea	13	packets	0	0	0	8
54	Vegetables, Canned	45	tins	0	0	1	10½
55	Vermicelli	3	parcels	0	0	0	3
56	Vinegar Essence	94	bottles	0	0	2	9
				2	7	0	15½
	A.—Metropolitan Area.						
1	Anchovies in Brine	116	tins	0	1	0	4
2	Almonds	1	packet	0	0	0	2
3	Barley (Patent)	104	tins	0	0	3	20
4	Beans, Lotus	1	bag	0	1	1	4
5	Beef, Corned	9	tins	0	0	0	9
6	Beverages	1	cask	0	2	0	26
7	Beverages	7	bottles	0	0	0	14
8	Cake	5	tins	0	0	1	16
9	Cheese	3	jars	0	0	0	1½
10	Chocolates	1	case	0	2	0	0
11	Confectionery	338	boxes	0	8	0	9
12	Cocoanut, Desiccated	126	packets	0	1	0	14
13	Dates	54	cases	1	17	0	0
14	Essences	100	bottles	0	0	0	6¼
15	Fruit	11	cases	0	4	0	0
16	Fruit, Evaporated	116	packets	0	1	0	6
17	Fruit, Canned	179	tins	0	3	0	6
18	Figs	3	packets	0	0	0	1½
		Carried forward		2	18	1	27¼

FOODSTUFFS CONDEMNED AND DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

No.	Article.	Quantity.	Weight. Tons	cwt.	qr.	lb.
	A.—Metropolitan Area—continued.					
		Brought forward ..	2	18	1	27¼
19	Fish Fillets (Aberdeen)	300 cases	2	5	2	14
20	Fish (Herrings)	30¼ barrels	0	16	0	0
21	Fish (Findon Haddocks)	50 cases	0	7	3	0
22	Fish (Red Herrings)	2 barrels	0	1	1	24
23	Fish (Herrings and Sauce)	24 cases	0	14	2	0
24	Fish (Herrings)	294 tins	0	2	2	14
25	Fish (Ling)	67 cases	1	16	2	0
26	Fish (Kippers)	13 cases	0	2	0	0
27	Fish (Sardines)	2,169 tins	0	5	2	10
28	Fish (Salmon)	5 tins	0	0	0	5
29	Fish (Sprats)	70 tins	0	0	0	17½
30	Groats	72 tins	0	0	2	26
31	Hops	1 packet	0	0	0	1
32	Jams, Assorted	188 tins	0	3	2	2
33	Magnesia, Fluid	4 bottles	0	0	0	2
34	Meat (Crab), Canned	81 tins	0	0	2	25
35	Meat (Beef), Canned	4 tins	0	0	0	1
36	Meal (Brose)	1 packet	0	0	0	1
37	Milk, Condensed	9 tins	0	0	0	9
38	Mustard	5 tins	0	0	0	2½
39	Meal (Wheat)	1 bag	0	0	0	7
40	Nutmegs	3 parcels	0	0	0	4
41	Oatmeal	17 packets	0	0	1	6
42	Prunes	1 packet	0	0	0	1
43	Potatoes	10 bags	0	10	0	0
44	Pepper, Mixed	6 tins	0	0	0	1½
45	Pickles	1 bottle	0	0	0	1½
46	Powder, Curry	17 tins	0	0	0	4¼
47	Puddings, Xmas	5 parcels	0	0	0	5
48	Raisins	30 packets	0	0	1	2
49	Raisins (Sultana)	17 packets	0	0	0	17
50	Spice, Mixed	65 packets	0	0	0	16½
51	Syrup	7 tins	0	0	0	14
52	Sheep Tongues	1 tin	0	0	0	1
53	Tomato Pulp	516 tins	10	0	0	0
54	Vegetable, Canned	1 tin	0	0	0	1
55	Walnuts	1 packet	0	0	0	6
			20	11	0	17
	Total amount of unsound foods condemned and destroyed by members of Northern Staff ..	..	5	3	2	27
	GRAND TOTAL	..	25	14	3	16

Northern Sub-Office, Townsville.

FOODSTUFFS CONDEMNED AND DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

Article.	Quantity.	Weight. Tons	cwt.	qr.	lb.
Bacon	1 parcel	0	0	0	10
Cheese	2 boxes	0	0	1	0
Cocoa	6 tins	0	0	0	3
Confectionery	14 packages	0	0	0	14
Dates	8 cases, 47 packages	0	2	1	5
Fruit, Preserved	1 case, 135 tins	0	2	3	5
Fruit, Dried	88 packages	0	0	3	24
Fish, Tinned	98 tins	0	0	2	11
Fish (Sardines)	489 tins	0	2	3	9
Fish Pastes	7 cases, 60 bottles	0	2	1	9
Fish (Herrings)	47 cases, 46 tins	2	2	2	8
Fish (Salmon)	5 cases	0	1	2	12
Fish (Ling)	26 cases	0	13	2	19
Figs	2 cases	0	4	1	26
Jam	6 cases, 180 tins	0	4	2	27
Lemon Squash	36 bottles	0	0	1	26
Muscatels	1 case	0	0	0	25
Milk, Condensed	54 tins	0	0	1	26
Meal	42 packages	0	0	3	26
Mushrooms, Preserved	108 tins	0	0	3	24
Pepper	1 tin	0	0	0	7
Prunes	14 cases	0	3	1	20
Potatoes	11 bags	0	14	0	0
Pickles	115 bottles	0	1	0	3
Raisins	4½ cases, 110 packages	0	2	3	16
Total	..	5	3	2	27

OFFICIAL SAMPLES—FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Article.	Number Adulterated.	Number Submitted.
1	Aerated Water	..	4
2	Beer	..	8
3	Brandy	30	32
4	Butter	1	3
5	Cinnamon (Ground)	1	1
6	Fermented Drinks (non-excisable)	0	4
7	Fruit Extracts	7	7
8	Ginger (Ground)	1	1
9	Gin	3	5
10	Liquid Paraffin	6	6
11	Milk (Fresh)	51	369
12	Milk (Condensed)	1	1
13	Meat (Sausage)	1	1
14	Pepper	..	1
15	Rum	10	12
16	Vinegar	..	1
17	Wine	..	12
18	Whisky	60	63
19	Cordials	..	49
		172	580

UNOFFICIAL SAMPLES SUBMITTED FOR ANALYSIS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Article.	Number Submitted.
1	Acid, Citric	3
2	Aerated Waters	64
3	Beef, Extract of	2
4	Brandy	1
5	Butter	4
6	Biscuits	4
7	Baking Powder	2
8	Bread	3
9	Beer	2
10	Bread Improvers	8
11	Cream	3
12	Cream of Tartar	2
13	Colours and Dyes	80
14	Custard Powders	15
15	Cordials Assorted	72
16	Curry Powders	3
17	Coffee and Milk	5
18	Coffee and Chicory	2
19	Cocoa and Milk	2
20	Chocolate and Milk	2
21	Cocoa	2
22	Confectionery	8
23	Cake, Fruit	1
24	Cinnamon (Powdered)	32
25	Containers (Metal)	1
26	Drinks (Non-excisable, Fermented)	10
27	Disinfectants	8
28	Dill Water	1
29	Dripping	1
	Carried forward	343

UNOFFICIAL SAMPLES SUBMITTED FOR ANALYSIS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

No.	Article.	Number Submitted.
	Brought forward	343
30	Egg Powder	3
31	Essences	48
32	Eucalyptus, Extract of	7
33	Exterminators, Insect	10
34	Fish (Canned)	114
35	Flavouring Oil	4
36	Fruit Juices	8
37	Fruit, Dried	2
38	Fruit, Extracts of	8
39	Fluid Magnesia	1
40	Food (Infants')	15
41	Ginger (Ground)	5
42	Headache Powder	5
43	Honey	8
44	Hair Tonics	2
45	Hydrometers	2
46	Ice Cream and Ices	4
47	Jelly Crystals	14
48	Jelly (Calves' Feet)	3
49	Jam	3
50	Meat	5
51	Milk (Fresh)	79
52	Milk (Condensed)	16
53	Malt, Extract of	1
54	Margarine	5
55	Medicine (Patent)	12
56	Oils (Salad)	26
57	Oil (Castor)	1
58	Oil (Citronella)	1
59	Pickles	2
60	Pills	9
61	Pepper	9
62	Preservatives	2
63	Liquorice Powder	12
64	Paraffin (Liquid)	7
65	Rum	1
66	Summer Beverages	5
67	Soup Powder	2
68	Sauce	3
69	Saline Effervescent	4
70	Salt	2
71	Spices	4
72	Soap	2
73	Schnapps	1
74	Smoke Sticks	1
75	Tin Pipe	2
76	Tomato Pulp	10
77	Tooth Powder	1
78	Toothache Cure	1
79	Tea	1
80	Water	8
81	Water Spa	7
82	Whisky	4
83	Wine	2
84	Vinegar	13
85	Vegetables (Canned)	3
		883

PROSECUTIONS FOR BREACH OF REGULATION 16 FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Basis of Prosecution.	Fines.			Costs.		
				£	*s.*	*d.*	£	*s.*	*d.*
1	30 September, 1913	Brisbane	Food exposure	0	10	0	2	5	6
2	6 November, 1913	South Brisbane	Food exposure	0	5	0	2	5	6
3	6 November, 1913	South Brisbane	Food exposure	0	5	0	2	5	6
4	18 November, 1913	Brisbane	Food exposure	0	0	6	2	8	0
5	18 November, 1913	Brisbane	Food exposure	0	10	0	2	5	6
6	13 November, 1913	South Brisbane	Food exposure	0	1	0	2	5	6
7	13 November, 1913	South Brisbane	Food exposure	0	5	0	0	6	0
8	13 November, 1913	South Brisbane	Food exposure	0	5	0	0	6	0
9	25 November, 1913	Brisbane	Bread exposure	0	1	0	2	5	6
10	11 December, 1913	Brisbane	Food exposure	5	0	0	0	3	6
11	20 January, 1914	Toowoomba	Food exposure	5	0	0	2	5	6
12	19 February, 1914	Brisbane	Food exposure	3	0	0	2	5	6
13	26 May, 1914	Brisbane	Food exposure	1	14	0	0	6	0
14	26 May, 1914	Brisbane	Food exposure	1	11	6	0	8	6
15	26 May, 1914	Brisbane	Food exposure	1	7	6	0	12	6
16	28 May, 1914	Brisbane	Fish exposure	0	5	0	2	7	6
17	28 May, 1914	Brisbane	Fish exposure	0	5	0	2	5	6
18	11 June, 1914	Brisbane	Bread exposure	2	18	0	2	5	6
19	11 June, 1914	Brisbane	Bread exposure	2	18	0	2	5	6
20	11 June, 1914	Brisbane	Bread exposure	2	18	0	2	5	6
21	11 June, 1914	Brisbane	Bread exposure	5	0	0	0	3	6
22	11 June, 1914	Brisbane	Bread exposure	5	0	0	0	3	6
23	11 June, 1914	Brisbane	Bread exposure	5	0	0	0	3	6
24	11 June, 1914	Brisbane	Bread exposure	5	0	0	0	3	6
			TOTAL	£48	19	6	£34	18	0

PROSECUTIONS FOR USING RAG TO TIGHTEN MILK-CAN LIDS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Fines.	Costs.
			£ s. d.	£ s. d.
1	9 September, 1913	Brisbane	0 1 0	3 3 0
2	25 November, 1913	Brisbane	2 0 0	0 10 4
3	7 April, 1914	Brisbane	0 17 6	0 3 6
4	18 June, 1914	Brisbane	0 5 0	0 3 6
5	18 June, 1914	Brisbane	0 5 0	2 5 6
		TOTAL	£3 8 6	£6 5 10

PROSECUTIONS FOR REFUSING TO SELL, ETC., FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Basis of Prosecution.	Fines.	Costs.
				£ s. d.	£ s. d.
1	7 August, 1913	Brisbane	Expectorating	1 0 0	0 3 6
2	20 January, 1914	Brisbane	Obstruction	5 0 0	2 5 6
3	13 March, 1914	Toowoomba	Obstruction	5 0 0	2 5 6
4	5 May, 1914	Gympie	Obstruction	5 0 0	1 4 6
5	18 June, 1914	Brisbane	Obstruction	1 0 0	2 5 6
6	18 June, 1914	Brisbane	Obstruction	3 0 0	2 5 6
7	3 December, 1913	Rockhampton	Short-weight bread	9 11 3	2 5 6
			TOTAL	£29 11 3	£12 15 6

PROSECUTIONS FOR ADULTERATION OF ALCOHOLIC LIQUORS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Class of Liquor.	Basis of Prosecution.	Costs.	Fines.
					£ s. d.	£ s. d.
1	9 July, 1913	Brisbane	Whisky	Added water, 25 per cent.	0 3 6	5 0 0
2	11 July, 1913	Brisbane	Brandy	Added water, 13·8 per cent.	2 5 6	3 0 0
3	13 November, 1913	South Brisbane	Brandy	Added water, 20·8 per cent.	0 3 6	0 10 0
4	13 November, 1913	South Brisbane	Whisky	Added water, 18·8 per cent.	2 5 6	0 10 0
5	18 December, 1913	South Brisbane	Rum	Added water, 1·5 per cent.	2 5 6	3 0 0
6	18 December, 1913	South Brisbane	Rum	Added water, 8·3 per cent.	2 5 6	0 10 0
7	27 January, 1914	Esk	Whisky	Added water { 4·20 / 7·82 } per cent.	4 5 3	0 10 0
8	26 February, 1914	Maryborough	Rum	Added water, 26·3 per cent.	7 3 4	10 0 0
9	26 February, 1914	Maryborough	Whisky	Added water, 8·9 per cent.		
10	26 February, 1914	Maryborough	Brandy	Added water, 10·1 per cent.		
11	22 April, 1914	South Brisbane	Brandy	Added water, 9·4 per cent.	2 9 0	2 18 0
12	7 May, 1914	Brisbane	Whisky	Added water, 11·0 per cent	3 6 6	5 0 0
13	18 June, 1914	Brisbane	Brandy	Added water, 22·4 per cent.	1 4 6	5 0 0
14	18 June, 1914	Brisbane	Whisky	Added water, 9·5 per cent.	1 4 6	0 5 0
15	23 June, 1914	Brisbane	Schnapps	Added water, 28 per cent.	5 8 6	2 12 0
					£34 10 7	£38 15 0

PROSECUTIONS FOR ADULTERATION OF SUNDRY AND DRUG LINES FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Article.	Fines.	Costs.
				£ s. d.	£ s. d.
1	13 March, 1914	Toowoomba	Malt Coffee	5 0 0	3 6 6
2	28 April, 1914	Brisbane	Liquid Paraffin	2 15 6	1 4 6
3	28 April, 1914	Brisbane	Liquid Paraffin	2 10 6	1 9 6
4	28 April, 1914	Brisbane	Liquid Paraffin	2 10 6	1 9 6
5	28 April, 1914	Brisbane	Liquid Paraffin	2 15 6	1 4 6
6	28 April, 1914	Brisbane	Liquid Paraffin	2 15 6	1 4 6
7	28 April, 1914	Brisbane	Liquid Paraffin	2 15 6	1 4 6
8	20 May, 1914	Brisbane	Fruit Extract	1 13 6	3 6 6
9	20 May, 1914	Brisbane	Fruit Extract	0 5 0	3 6 6
10	28 May, 1914	Brisbane	Lime Juice Cordial	2 0 0	1 9 6
11	28 May, 1914	Brisbane	Raspberry Cordial	0 1 0	1 4 6
12	18 June, 1914	Brisbane	Lime Juice	0 5 0	1 4 6
13	8 July, 1913	Brisbane	Vinegar	0 5 0	0 3 6
				£25 12 6	£21 18 6

PROSECUTIONS FOR MILK ADULTERATION FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No.	Date.	Place.	Basis of Prosecution.	Fines.			Costs.		
				£	*s.*	*d.*	£	*s.*	*d.*
1	10 July, 1913 ..	South Brisbane ..	Added water, 3 per cent.	3	0	0	2	12	4
2	15 July, 1913 ..	Mount Morgan ..	Added water, 7 per cent.	7	0	0	3	13	4
3	15 July, 1913 ..	Rockhampton ..	Added water, 12 per cent.	15	0	0	3	6	6
4	15 July, 1913 ..	Rockhampton ..	Added water, 16 per cent.	20	0	0	3	8	4
5	15 July, 1913 ..	Rockhampton ..	Added water, 12 per cent.	18	0	0	3	8	4
6	15 July, 1913 ..	Rockhampton ..	Added water, 13 per cent.	19	10	0	3	6	6
7	28 July, 1913 ..	South Brisbane ..	Added water, 14 per cent.		..		2	5	6
8	28 July, 1913 ..	South Brisbane ..	Added water, 25 per cent.	5	0	0	2	5	6
9	28 July, 1913 ..	South Brisbane ..	Added water, 21 per cent.	3	0	0	0	3	6
10	4 August, 1913 ..	Brisbane	Deficient milk fat, 13·9 per cent. ..	1	19	0	3	6	6
11	19 August, 1913 ..	Brisbane	Added water, 4 per cent.	4	0	0	3	6	6
12	13 November, 1913	South Brisbane ..	Added water, 7 per cent.	5	0	0	0	3	6
13	25 November, 1913	Brisbane	Deficient milk fat, 21·2 per cent. ..	3	0	0	2	5	6
14	25 November, 1913	Brisbane	Added water, 17 per cent.	14	4	8	5	15	4
15	25 November, 1913	Brisbane	Added water, 11 per cent.	10	0	0	3	13	4
16	19 December, 1913	Brisbane	Deficient milk fat, 21·2 per cent. ..	1	0	0	2	12	4
17	19 December, 1913	Brisbane	Deficient milk fat, 15·1 per cent. ..	1	0	0	2	12	4
18	22 December, 1913	Ipswich	Deficient milk fat, 49·7 per cent. ..	2	0	0	1	11	4
19	23 December, 1913	Brisbane	Added water, 11 per cent.	25	0	0	3	13	4
20	23 December, 1913	Brisbane	Added water, 29 per cent.	20	0	0	3	13	4
21	29 January, 1914 ..	South Brisbane ..	Added water, 5 per cent.	2	0	0	0	3	6
22	19 February, 1914..	Brisbane	Added water, 8 per cent.	10	0	0	0	3	6
23	13 March, 1914 ..	Toowoomba	Added water, 3·7 per cent	5	0	0	3	13	4
24	13 March, 1914 ..	Toowoomba	Added water, 18 per cent.	9	0	0	3	11	10
25	13 March, 1914 ..	Toowoomba	Added water, 19 per cent.	10	0	0	3	8	4
26	13 March, 1914 ..	Toowoomba	Added water, 17 per cent.	9	0	0	3	13	4
27	13 March, 1914 ..	Toowoomba	Added water, 10·9 per cent.	6	0	0	3	15	10
28	13 March, 1914 ..	Toowoomba	Added water, 5·9 per cent.	5	0	0	3	14	4
29	13 March, 1914 ..	Toowoomba	Deficient milk fat, 13·3 per cent. ..	3	0	0	3	6	6
30	7 April, 1914 ..	Brisbane	Added water, 38 per cent. ..	13	19	0	1	4	6
31	7 April, 1914 ..	Brisbane	Added water, 29·0 per cent. ..	13	19	0	1	4	6
32	20 April, 1914 ..	Southport	Added water, 29·0 per cent. ..	15	0	0	1	4	6
33	20 April, 1914 ..	Southport	Added water, 4 per cent.		..		1	11	4
34	18 June, 1914 ..	Brisbane	Deficient milk fat, 25·7 per cent. ..	0	10	0	0	3	6
35	18 June, 1914 ..	Brisbane	Deficient milk fat, 18·4 per cent ..	0	5	0	0	8	6
36	18 June, 1914 ..	Brisbane	Added water, 4·8 per cent.	5	0	0	3	6	6
37	18 June, 1914 ..	Brisbane	Added water, 7 per cent.	4	0	0	1	9	6
38	18 June, 1914 ..	Brisbane	Added water	6	0	0	1	9	6
39	18 June, 1914 ..	Brisbane	Added water, 6 per cent.	5	0	0	1	4	6
40	18 June, 1914 ..	Brisbane	Added water, 16 per cent.	2	0	0	3	6	6
41	29 June, 1914 ..	Brisbane	Added water, 20 per cent.	10	0	0	3	11	6
			TOTALS	£312	6	8	£102	18	6

Northern Sub-Office, Townsville.

PROSECUTIONS FOR MILK ADULTERATION FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

No	1913-1914.	Place.	Basis of Prosecution.	Fines.			Costs.		
				£	*s.*	*d.*	£	*s.*	*d.*
1	9 December, 1913	Townsville	Added water, 8 per cent.	4	0	0	1	16	10
2	9 December, 1913	Townsville	Deficient milk fat, 15 per cent. ..	1	0	0	1	16	10
3	9 December, 1913	Townsville	Deficient milk fat, 12 per cent. ..	1	0	0	1	16	10
4	9 December, 1913	Townsville	Deficient milk fat, 12 per cent. ..		..		1	4	6
5	9 December, 1913	Townsville	Added water, 30 per cent.	15	0	0	1	6	10
6	9 December, 1913	Townsville	Deficient milk fat, 18 per cent. ..	1	0	0	1	15	0
7	9 December, 1913	Townsville	Added water, 3 per cent.	1	10	0	1	4	6
8	9 December, 1913	Townsville	Added water, 31 per cent.	15	10	0	1	15	0
9	9 December, 1913	Townsville	Added water, 15 per cent.	7	10	0	1	16	10
10	9 December, 1913	Townsville	Added water, 2 per cent.		..		1	16	10
11	23 January, 1914 ..	Mackay	Added water, 16 per cent.	3	0	0	3	10	2
12	23 January, 1914 ..	Mackay	Added water, 26 per cent.	3	0	0	3	13	8
13	23 January, 1914 ..	Mackay	Added water, 28 per cent.	3	0	0	3	10	8
14	23 January, 1914 ..	Mackay	Added water, 17 per cent.	3	0	0	3	10	2
15	17 February, 1914..	Townsville	Added water, 5 per cent.		..		1	15	10
16	17 February, 1914..	Townsville	Added water, 7 per cent.	1	0	0	1	16	10
17	22 May, 1914 ..	Townsville	Deficient milk fat, 15 per cent. ..	1	0	0	1	16	10
			TOTALS	£60	10	0	£36	12	10

Prosecutions for Using Rag to Tighten Milk-can Lids.

No.	1914.	Place.	Fines.	Costs.
			£ s. d.	£ s. d.
1	29 January	Bowen	0 5 0	2 5 6

Prosecutions for Light-weight Bread.

No.	1913-1914.	Place.	Fines.	Costs.
			£ s. d.	£ s. d.
1	21 November, 1913	Brandon	2 9 0	1 4 6
2	24 November, 1913	Townsville	2 9 0	1 4 6
3	23 January, 1914	Mackay	3 0 0	2 7 8
4	23 January, 1914	Mackay	3 0 0	2 7 8
5	23 January, 1914	Finch Hatton	3 0 0	2 7 8
		Totals	£13 18 0	£9 12 0

Other Prosecutions.

No.	1913-1914.	Place.	Basis of Prosecution.	Fines.	Costs.
				£ s. d.	£ s. d.
1	9 December, 1913	Townsville	Dirty premises (Baker)	0 1 0	0 14 0
2	9 December, 1913	Townsville	Dirty premises (Baker)	0 1 0	0 14 0
3	9 December, 1913	Townsville	Dirty personal appearance (Baker)	0 1 0	0 3 6
4	23 January, 1914 ..	Mackay	Adulterated spirits	3 0 0	3 8 8
5	23 January, 1914 ..	Mackay	Adulterated spirits	3 0 0	3 13 8
6	23 January, 1914 ..	Mackay	Adulterated spirits	0 1 0	3 8 8
7	23 January, 1914 ..	Finch Hatton	Adulterated spirits	3 0 0	3 8 8
8	23 January, 1914 ..	Finch Hatton	Adulterated spirits	3 0 0	3 8 8
9	29 January, 1914 ..	Bowen	Adulterated spirits	0 5 0	3 6 6
10	26 February, 1914..	Townsville	Ices made under prohibited conditions	5 0 0	2 5 6
11	22 May, 1914 ..	Townsville	Bread exposed to contamination ..	0 1 0	0 3 6
12	22 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
13	22 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
14	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
15	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
16	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
17	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
18	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
19	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
20	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
21	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
22	29 May, 1914 ..	Townsville	Adulterated spirits	1 0 0	1 15 0
23	29 May, 1914 ..	Townsville	Adulterated spirits	0 10 0	1 15 0
24	29 May, 1914 ..	Townsville	Adulterated spirits	0 10 0	1 15 0
			Totals	£29 10 0	£47 10 0

Visits by Inspectors to Country Towns from 1st July, 1913, to 30th June, 1914.

Date.	Place.	Inspector.	Purpose of Visit.
13-14 July, 1913	Alpha	Stewart	Food inspection
17 Oct., 1913	Ayr	Beaver	Bread weighing
20 Oct., 1913	Ayr	Beaver	Food inspection
19-20 Dec., 1913	Adavale	Young	Food inspection
29-31 Dec., 1913	Augathella	Young	Food inspection
7 Jan., 1914	Amby	Young	Food inspection
26 May, 1914	Alberton	Plumb	Liquor testing
30 Aug. to	Beaudesert	Mason	Food inspection
1 Sep., 1913			
26 May, 1914	Beaudesert	Plumb	Liquor testing
2 Sep., 1913	Beenleigh	Mason	Food inspection
17 Sep., 1913	Beenleigh	Beaver	Food inspection and re-inspection
17 Sep., 1913	Beenleigh	Sanderson	Food inspection and re-inspection
26 May, 1914	Bethania Junction ..	Plumb	Liquor testing
1 July, 1913	Barcaldine	Young	Food inspection
8 Oct., 1913	Benarkin	Stewart	Liquor testing and food inspection
7 Oct., 1913	Blackbutt	Stewart	Food inspection
12 July, 1913	Blackall	Stewart	Food inspection and drug sampling

VISITS BY INSPECTORS TO COUNTRY TOWNS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

Date.	Place.	Inspector.	Purpose of Visit.
17 July, 1913	Blackridge	Stewart	Food inspection
23-25 Mar., 1914	Boonah	Beaver	Food inspection
21-22 Oct., 1913	Bowen	Beaver	Food inspection, liquor testing, and bread weighing
25-27 Oct., 1913	Bowen	Beaver	Food inspection
17 Oct., 1913	Brandon	Beaver	Liquor testing
19 Oct., 1913	Bundaberg	Mason	Liquor testing and food inspection
22-27 Oct., 1913	Bundaberg	Mason	Food inspection
4 Feb., 1914	Caboolture	Mason	Liquor testing and food inspection
26 May, 1914	Capalaba	Plumb	Liquor testing
21-26 Nov., 1913	Charleville	Young	Food inspection
16-17 Dec., 1913	Charleville	Young	Food re-inspection and coach
24-26 Dec., 1913	Charleville	Young	Food re-inspection and coach
6 Jan., 1914	Charleville	Young	Food re-inspection and coach
21-23 Oct., 1913	Chinchilla	Young	Food inspection
2-5 July, 1913	Cloncurry	Chief Food Inspector	Food inspection and chemists
18 July, 1913	Clermont	Stewart	Food inspection
27 Mar., 1914	Cleveland	Plumb	Liquor testing
9-26 Aug., 1913	Coolangatta	Mason	Food inspection and supervising quarantine requirements
17-18 Mar., 1914	Cooyar	Mason	Food inspection
26-27 April, 1914	Cooroy	Mason	Food inspection
29-30 April, 1914	Cooroy	Mason	Food inspection
1-2 May, 1914	Cooran	Mason	Food inspection
24-26 Mar., 1914	Crow's Nest	Mason	Food inspection
26 May, 1914	Coomera	Plumb	Liquor testing
1-6 Dec., 1913	Cunnamulla	Young	Food inspection
15-18 Oct., 1913	Dalby	Young	Food inspection
16 Jan., 1914	Dunwich	Beaver	Handing over forfeited liquor
8 April, 1914	Eight-mile Plains	Plumb	Liquor testing
15 July, 1913	Emerald	Stewart	Food inspection
9-10 Oct., 1913	Esk	Stewart	Food inspection and liquor testing re-inspection
3-4 Dec., 1913	Esk	Stewart	Laying information *re* liquor prosecution
27-28 Jan., 1914	Esk	Stewart	Liquor prosecution and bread weighing
14 Dec., 1913	Eulo	Young	Food inspection
25 April, 1914	Eumundi	Mason	Liquor testing and food inspection
25 June, 1914	Eumundi	Mason	Releasing liquor from seal
3-4 July, 1913	Friezland	Stewart	Food inspection
16 Mar., 1914	Gatton	Beaver	Food inspection and liquor testing
18-19 Mar., 1914	Gatton	Beaver	Food inspection and liquor testing
26 May, 1914	Gatala	Plumb	Liquor testing
8-10 Dec., 1913	Gayndah	Beaver	Liquor testing and food inspection
26 May, 1914	German Bridge	Plumb	Liquor testing
25 Mar., 1914	Goodna	Plumb	Liquor testing
26 Mar., 1914	Goodna	Plumb	Liquor testing
16 April, 1914	Goodna	Plumb	*Re* Liquor prosecution
17 April, 1914	Goodna	Plumb	*Re* Liquor prosecution
26 Mar., 1914	Goodna	Sanderson	Food inspection
17 Mar., 1914	Grantham	Beaver	Food inspection
8-18 Feb., 1914	Gympie	Mason	Liquor testing, food inspection, and prosecution for obstruction
4-7 May, 1914	Gympie	Mason	Food inspection
27-28 May, 1914	Gympie	Mason	Liqour testing and re-inspection
24-25 June, 1914	Gympie	Mason	Destruction of blown tins
13-14 Dec., 1913	Gympie	Beaver	Food inspection
14-15 Oct., 1913	Gladstone	Mason	Liquor testing and food inspection
17-18 Oct., 1913	Gladstone	Mason	Food inspection
19 Mar., 1914	Goombungee	Mason	Food inspection and liquor testing
23 Mar., 1914	Gowrie Junction	Mason	Food inspection
27-28 Mar., 1914	Harrisville	Beaver	Food inspection, bread weighing, and spa water sampling
20 Jan., 1914	Helidon	Mason	Bread weighing and food inspection
7 July, 1913	Hughenden	Chief Food Inspector	Food inspection and chemists
7-8 July, 1913	Hughenden	Stewart	Food inspection
25-28 July, 1913	Ipswich	Beaver	*Re* Smallpox outbreak
3 Dec., 1913	Ipswich	Stewart	Laying information *re* milk prosecution
16 Dec., 1913	Ipswich	Stewart	Food inspection
16 Dec., 1913	Ipswich	Sanderson	Food inspection
28 Oct., 1913	Ipswich	Stewart	Milk sampling
1 April, 1914	Ipswich	Beaver	Food inspection
1 April, 1914	Ipswich	Sanderson	Food inspection
13 May, 1914	Ipswich	Stewart	Cordial sampling
13 May, 1914	Ipswich	Young	Cordial sampling
26 May, 1914	Jimboomba	Plumb	Liquor testing
16-17 Mar., 1914	Jondaryan	Mason	Food inspection
5 Feb., 1914	Kilcoy	Mason	Liquor testing and food inspection
18 Mar., 1914	Kingsthorpe	Mason	Food inspection
8-10 May, 1914	Kilkivan	Mason	Food inspection and liquor testing
14 May, 1914	Kingaroy	Mason	Food inspection
17-19 May, 1914	Kingaroy	Mason	Food inspection and liquor testing
9-10 July, 1913	Longreach	Chief Food Inspector	Food inspection and chemists
20 April, 1914	Landsborough	Mason	Food inspection
20-21 Mar., 1914	Laidley	Beaver	Food inspection and liquor testing
8 Oct., 1913	Linville	Stewart	Food inspection and liquor testing
11 Oct., 1913	Lowood	Stewart	Liquor testing and food inspection
5 Dec., 1913	Lowood	Stewart	Food inspection

VISITS BY INSPECTORS TO COUNTRY TOWNS FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

Date.	Place.	Inspector.	Purpose of Visit.
12-14 July, 1913	Maryborough	Beaver	Food inspection and laying information *re* milk prosecution
26-30 Nov., 1913	Maryborough	Beaver	Food inspection
25-28 Feb., 1914	Maryborough	Beaver	Prosecution for adulterated liquors
18 July, 1913	Mount Morgan	Mason	*Re* milk prosecution
6-8 Oct., 1913	Mount Morgan	Mason	Food inspection
18 July, 1913	Mount Morgan	Beaver	*Re* milk prosecution
15-16 Oct., 1913	Many Peaks	Mason	Food inspection and liquor testing
20-22 Oct., 1913	Mount Perry	Mason	Food inspection and liquor testing
26 Mar., 1914	Meringandan	Mason	Food inspection
21 April, 1914	Mooloolah	Mason	Food inspection and liquor testing
26 June, 1914	Mooloolah	Mason	Releasing and re-inspection
12 May, 1914	Murgon	Mason	Food inspection
26 May, 1914	Mooroolen	Mason	Food inspection
29-31 Oct., 1913	Mackay	Beaver	Food inspection and liquor testing
24 Oct., 1913	Miles	Young	Food inspection
17-18 Nov., 1913	Mitchell	Young	Food inspection
19-20 Nov., 1913	Morven	Young	Food inspection
27 Jan., 1914	Millmerran	Young	Food inspection
2 July, 1913	Marraba	Stewart	Food inspection
2 July, 1913	Malbon	Stewart	Food inspection
8 Oct., 1913	Moore	Stewart	Food inspection
15 May, 1914	Manly	Stewart	Milk sampling
15 May, 1914	Manly	Young	Milk sampling
6 Nov., 1913	Manly	Stewart	Food inspection
8 April, 1914	Mount Gravatt ..	Plumb	Liquor testing
23-24 April, 1914	Nambour	Mason	Food inspection and liquor testing
20-23 May, 1914	Nanango	Mason	Food inspection and liquor testing
16 Mar., 1914	Oakey	Mason	Food inspection
23-24 Jan., 1914	Oakey	Young	Food inspection
3 Oct., 1913	Ormiston	Stewart	Dairy inspection
3 Oct., 1913	Ormiston	Sanderson	Dairy inspection
8 April, 1914	Oxley	Stewart	Food inspection
27 May, 1914	Oxenford	Plumb	Liquor testing
21 April, 1914	Palmwoods	Mason	Liquor testing and food inspection
25 June, 1914	Palmwoods	Mason	Food inspection
27-28 Mar., 1914	Pittsworth	Mason	Food inspection and liquor testing
29-30 Jan., 1914	Pittsworth	Young	Food inspection
23-25 Oct., 1913	Proserpine	Beaver	Bread weighing and liquor testing
10 Nov., 1913	Port Alma	Beaver	Food inspection
2-3 Feb., 1914	Pialba	Beaver	Food inspection and liquor testing
26 Mar., 1914	Peak Crossing	Beaver	Food inspection and liquor testing
2 April, 1914	Pinkenba	Stewart	Food inspection
14 May, 1914	Pinkenba	Plumb	Liquor testing
15-17 July, 1913	Rockhampton	Mason	Food inspection and milk prosecution
19-21 July, 1913	Rockhampton	Mason	Food inspection
22 Sep. to 5 Oct., 1913	Rockhampton	Mason	Food re-inspection
9-13 Oct., 1913	Rockhampton	Mason	Food inspection
14-18 July, 1913	Rockhampton	Beaver	Food inspection and milk prosecution
19-21 July, 1913	Rockhampton	Beaver	Liquor testing
22-26 Sep., 1913	Rockhampton	Beaver	Bread weighing and food re-inspection
10-11 Nov., 1913	Rockhampton	Beaver	Food re-inspection and laying information *re* bread prosecution
2-7 Dec. 1913	Rockhampton	Beaver	Bread prosecution and food inspection
26 Mar., 1914	Roadvale	Beaver	Bread weighing and food inspection
4-15 Nov., 1913	Roma	Young	Food inspection
30 Mar,. 1914	Redbank	Plumb	Liquor testing
11 Nov., 1913	Redcliffe	Stewart	Milk sampling and food inspection
11 Nov., 1913	Redcliffe	Sanderson	Milk sampling
27-29 Aug., 1913	Southport	Mason	Food inspection
1-3 Feb., 1914	Southport	Stewart	Milk sampling, liquor testing, food re-inspection
1 Feb., 1914	Southport	Sanderson	Milk sampling
17 Oct., 1913	Sandgate	Sanderson	Milk sampling
17 Oct., 1913	Sandgate	Stewart	Milk sampling
13 May, 1914	Sandgate	Stewart	Milk sampling
13 May, 1914	Sandgate	Young	Milk sampling
1 April, 1914	Sandgate	Plumb	Liquor testing
27-29 Oct., 1913	Surat	Young	Food inspection
2 July, 1913	Selwyn	Stewart	Food inspection
2-4 June, 1914	Stanthorpe	Stewart	Milk sampling, typhoid fever sanitary survey, and bread weighing
1-16 Dec., 1913	Toowoomba	Mason	Food inspection and liquor testing
1-10 Dec., 1913	Toowoomba	Sanderson	Food inspection
4-5 Jan., 1914	Toowoomba	Mason	Milk sampling and laying information *re* prosecution for dirty premises
19-20 Jan., 1914	Toowoomba	Mason	Food inspection and prosecution for dirty premises
12-15 Mar., 1914	Toowoomba	Mason	Milk prosecution, malt and coffee prosecution, and re-inspection
20-23 Mar., 1914	Toowoomba	Mason	Liquor testing
4 Jan., 1911	Toowoomba	Beaver	Milk sampling and food inspection
12-15 Mar., 1914	Toowoomba	Beaver	Milk prosecution, food inspection, and malt and coffee prosecution
1 June, 1914	Toowoomba	Beaver	Food inspection and liquor testing
1 June, 1914	Toowoomba	Stewart	Liquor testing and bread weighing

VISITS BY INSPECTORS TO COUNTRY TOWNS, FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

Date.	Place.	Inspector.	Purpose of Visit.
6 June, 1914	Toowoomba	Beaver	Milk sampling
28 April, 1914	Tewantin	Mason	Food inspection
25 May, 1914	Taabinga	Mason	Food inspection
29 Sep. to 16 Oct., 1913	Townsville	Beaver	Bread weighing, liquor testing, milk sampling, and food inspection
9-12 Dec., 1913	Thargomindah	Young	Food inspection
2-3 Jan., 1914	Tambo	Young	Food inspection
15-19 Jan., 1914	Taroom	Young	Food inspection
9 Oct., 1913	Toogoolawah	Stewart	Food inspection and liquor testing
27 Jan., 1914	Tarampa	Stewart	Food inspection and liquor testing
18-19 April, 1914	Tweed Heads	Stewart	Supervision of Quarantine requirements and food inspection
25 May, 1914	Tingalpa..	Stewart	Dairy inspection
27 May, 1914	Tingalpa..	Stewart	Milk sampling
17 Mar., 1914	Tingalpa..	Plumb	Liquor testing
27 May, 1914	Veresdale	Plumb	Liquor testing
6-7 Feb., 1914	Woodford	Mason	Liquor testing and food inspection
22 April, 1914	Woombye	Mason	Liquor testing and food inspection
13-15 May, 1914	Wondai	Mason	Liquor testing and food inspection
27-29 Nov., 1913	Wyandra	Young	Food inspection
9 Jan., 1914	Wallumbilla	Young	Food inspection
21-22 Jan., 1914	Warra	Young	Food inspection
15 May, 1914	Wynnum	Young	Food inspection
13 May, 1914	Wynnum	Young	Milk sampling
13 May, 1914	Wynnum	Stewart	Milk sampling
5 Nov., 1913	Wynnum	Stewart	Food inspection
7 Nov., 1913	Wynnum	Stewart	Food inspection
3 April, 1914	Wynnum	Plumb	Liquor testing
11 Nov., 1913	Woody Point	Stewart	Milk sampling, food inspection, and liquor testing
11 Nov., 1913	Woody Point	Sanderson	Milk sampling
9 July, 1914	Winton	Stewart	Food inspection
5 June, 1914	Warwick	Beaver	Bread weighing and liquor testing
8-9 July, 1914	Winton	Chief Food Inspector ..	Food and drugs inspection
5 June, 1914	Warwick	Stewart	Milk sampling
26 May, 1914	Waterford	Plumb	Liquor testing
31 Oct., 1913	Yeulba	Young	Food inspection
6-7 Oct., 1913	Yarraman	Stewart	Food inspection

INSPECTORS' VISITS OUTSIDE TOWNSVILLE (NORTHERN STAFF ON FOOD INSPECTION).

1913-1914.	Place.	Inspector.	Purpose of Visit.
2-3 Aug., 1913	Alligator Creek ..	J. G. Wiseman	Food inspection
13-18 Aug., 1913	Atherton	R. A. Wright	Food inspection
17-21 Aug., 1913	Ayr	R. A. Wright	Food inspection
17-21 Oct., 1913	Ayr	S. B. Cottle	Food inspection
2-3 Jan., 1914	Ayr	J. G. Wiseman	Food inspection
19-24 Mar., 1914	Ayr	J. G. Wiseman	Court case
22 Oct., 1913	Ayrdale	R. A. Wright	Food inspection
22 Oct., 1913	Ayrdale	S. B. Cottle	Food inspection
12-13 July, 1913	Balfe's Creek	J. G. Wiseman	Food inspection
17-25 Aug., 1913	Bowen	J. G. Wiseman	Food inspection
6-8 Sep., 1913	Bowen	J. G. Wiseman	Food inspection
20-23 Oct., 1913	Bowen	J. G. Wiseman	Food inspection and laying information
25-28 Jan., 1914	Bowen	J. G. Wiseman	Prosecutions and general inspections
3-6 Sep., 1913	Bowen River	J. G. Wiseman	Food inspection
23-24 Oct., 1913	Brandon	R. A. Wright	Food inspection
23-24 Oct., 1913	Brandon	S. B. Cottle	Food inspection
14-18 July, 1913	Cairns	R. A. Wright	Food inspection
30 July to 4 Aug., 1913	Cairns	R. A. Wright	Food inspection
27-29 Oct., 1913	Cairns	R. A. Wright	Food inspection
13-29 April, 1914	Cairns	R. A. Wright	Court case and re-inspections
3-4 April, 1914	Cardross	R. A. Wright	Food and general inspection
27-29 Aug., 1913	Cardwell	R. A. Wright	Food inspection
18-20 Aug., 1913	Chillagoe	R. A. Wright	Food inspection
24-30 Dec., 1913	Chillagoe	R. A. Wright	Food and general inspections
26-28 Sep., 1913	Cloncurry	J. G. Wiseman	Food and general inspection
22-23 July, 1913	Cooktown	R. A. Wright	Food inspection
23-30 July, 1913	Cooktown	R. A. Wright	Food inspection
22-26 Sep., 1913	Duchess	J. G. Wiseman	Food and general inspection
26 July, 1913	Eimeo	J. G. Wiseman	Food inspection
6-8 Aug., 1913	Eton	J. G. Wiseman	Food inspection
8 Aug., 1913	Eungella..	J. G. Wiseman	Food inspection
2-3 Sep., 1913	Euri	J. G. Wiseman	Food inspection
9 Aug., 1913	Finch Hatton	J. G. Wiseman	Food inspection
15-16 Nov., 1913	Finch Hatton	J. G. Wiseman	Food inspection
19-22 Sep., 1913	Friezeland	J. G. Wiseman	Food and general inspection
2-4 Sep., 1913	Halifax	R. A. Wright	Food inspection
4-5 Aug., 1913	Hambledon Junction ..	R. A. Wright	Food inspection
25 July, 1913	Hampden	J. G. Wiseman	Food inspection
9-13 Aug., 1913	Herberton	R. A. Wright	Food inspection
29 July, 1913	Homebush	J. G. Wiseman	Food inspection

INSPECTORS' VISITS OUTSIDE TOWNSVILLE (NORTHERN STAFF ON FOOD INSPECTION)—*continued.*

1913-1914.	Place.	Inspector.	Purpose of Visit.
21 Oct., 1913	Homehill	S. B. Cottle	Food inspection
21 Oct., 1913	Homehill	R. A. Wright	Food inspection
11-12 July, 1913	Homestead	J. G. Wiseman	Food inspection
29 Aug. to 2 Sept., 1913	Ingham	R. A. Wright	Food inspection
21-22 Oct., 1913	Inkerman	R. A. Wright	Food inspection
21-22 Oct., 1913	Inkerman	S. B. Cottle	Food inspection
22-27 Aug., 1913	Innisfail	R. A. Wright	Food inspection
20-21 Aug., 1913	Kuranda	R. A. Wright	Food inspection
23 July, 1913	Laura	R. A. Wright	Food inspection
4-5 Sep., 1913	Lucinda Point	R. A. Wright	Food inspection
14-25 July, 1913	Mackay	J. G. Wiseman	Food inspection
26-29 July, 1913	Mackay	J. G. Wiseman	Food inspection
12-17 Aug., 1913	Mackay	J. G. Wiseman	Food inspection
28 Oct. to 12 Nov., 1913	Mackay	J. G. Wiseman	Food inspection
16-19 Nov., 1913	Mackay	J. G. Wiseman	Food inspection
6-19 Jan., 1914	Mackay	J. G. Wiseman	Food and general inspection, and laying information
21-25 Jan., 1914	Mackay	J. G. Wiseman	Prosecutions and inspections
22 Sep., 1913	Malbon	J. G. Wiseman	Food and general inspections
26 Sep., 1913	Marabah	J. G. Wiseman	Food and general inspections
6-9 Aug., 1913	Mareeba	R. A. Wright	Food inspections
11 Aug., 1913	Marian	J. G. Wiseman	Food inspections
5 Aug., 1913	Meeba	R. A. Wright	Food inspections
29 Aug., 1913	Merinda	J. G. Wiseman	Food inspections
28 Jan., 1914	Merinda	J. G. Wiseman	Food inspections
9-11 Aug., 1913	Mirani	J. G. Wiseman	Food inspections
14-15 Nov., 1913	Mirani	J. G. Wiseman	Food inspections
19-20 July, 1913	Mossman	R. A. Wright	Food inspections
22-24 Dec., 1913	Mungana	R. A. Wright	Food and general inspections
4-6 Aug., 1913	Nebo	J. G. Wiseman	Food inspection
4 Aug., 1913	Nelson	R. A. Wright	Food inspection
11 July, 1913	Pentland	J. G. Wiseman	Food inspection
23 Oct., 1913	Pioneer	R. A. Wright	Food inspection
23 Oct., 1913	Pioneer	S. B. Cottle	Food inspection
18-19 July, 1913	Port Douglas	R. A. Wright	Food inspection
23-28 Oct., 1913	Proserpine	J. G. Wiseman	Food inspection
9-11 July, 1913	Prairie	J. G. Wiseman	Food inspection
20-24 Dec., 1913	Ravenswood	J. G. Wiseman	Food and general inspection
18-20 Dec., 1913	Ravenswood Junction	J. G. Wiseman	Food and general inspection
31 July to 2 Aug., 1913	Sarina	J. G. Wiseman	Food inspection
17-19 Sep., 1913	Selwyn	J. G. Wiseman	Food and general inspections
18 Aug., 1913	Tolga	R. A. Wright	Food inspection
12-14 Nov., 1913	Walkerston	J. G. Wiseman	Food inspection

APPENDIX H.

SECOND PROGRESS REPORT OF THE CAMPAIGN AGAINST MOSQUITOES IN BRISBANE.

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In presenting the second progress report on the campaign against mosquitoes in Brisbane, I desire to briefly mention the manner in which the work has been executed and the comparative results of different larvicides and other hostile agencies; in addition, in view of the new species that are constantly being added, I think it advisable to append a list of *Culicidæ* of Queensland.

Considering mosquito reduction from a public health standpoint, it is well to mention that efforts were directed against those species which may act as intermediary hosts for protozoal and entozoal infection in man. These species comprise *Stegomyia fasciata,* Fabricius, and *Culex fatigans*, Wiedemann, which are respectively the hosts of the yellow fever virus and the filarial embryos. The *Anophelinæ,* some of which are carriers of the malarial parasites, are not of much importance in Southern Queensland, although they are very prevalent in the Northern Territory about the malarial zone. *Culicelsa vigilax,* Skuse, the "salt marsh mosquito," although an extemely annoying species, is of no pathogenic consequence; it is a migratory insect, and capable of travelling into the town, although being unable to breed in water collections kept under treatment within the town.

The specific carrier of yellow fever has attained such a foothold in Queensland that the question of putting it to rout is principally a matter of private enterprise. Although we have this yellow fever species of mosquito, we are fortunately free from yellow fever. This state of affairs should not, by any means, lessen the efforts in dealing with the destruction of *S. fasciata,* bearing in mind the oft-quoted results which may attend us on the opening of the Panama Canal. In dealing with this mosquito we are dealing with the intermediary host of yellow fever, and in the absence of *S. fasciata* this disease could be treated even with safer effects than smallpox could in a vaccinated community.

The screening of tanks and the attention to other domestic collections of water has been the work in connection with the destruction of *S. fasciata.* Roof gutters, when not laid at self-draining slopes, or when blocked with leaves, have been seen to act as fertile propagation places; for, the small amount of water, which is sometimes scarcely noticeable in such, is no less significant than the thousand gallons of water stored in a tank.

In a previous report, a short classification of the breeding places of *C. fatigans* was given which indicated that, although this mosquito could be bred on private premises, such as in liquid manure, barrels, cesspools, &c., it was chiefly bred in watercourses, watertables, and other sewage collections. The reduction of this species thus primarily consists of action on the part of a Health Department or a Local Authority, and, secondly, by individual enterprise.

During the past year the reduction of this species only depended on weekly petrolisation of sewage contaminated watercourses and other such places; but few permanent measures in the way of "filling" could be therefore accomplished.

The only permanent measure for dealing successfully with these polluted watercourses is by an efficient sewerage system; on the other hand, it is unnecessary to mention the absurdity of attempting to fill in watercourses.

The conversion of rural watercourses into mosquito-breeding places is a matter which is constantly arising in newly settled areas. In considering this, it is unnecessary to state that the breeding of *C. fatigans* is mainly affected by habitation. A rural watercourse which contains at least one species of our numerous larvivorous fishes will, under natural conditions, never be found to breed any larvæ. On the other hand, as this district becomes settled and household sewage finds a direct route to such a watercourse, the water becomes deoxidised by the nitrogenous

Example of a water-holding tree, "Poinciana regia," which has been prevented from further acting as a breeding-place of *Scutomyia notoscripta* by the deposition of cement in the cavity indicated by "X."

An example showing how water-holding plants may act as mosquito-breeding places. Species of genus Bilbergia in which larvæ and pupæ of *Scutomyia notoscripta*, *Stegomyia fasciata*, and *Culex fatigans* have been noted.

compounds in the sewage, with the result that fish are either killed or driven down stream. Thus a previously clean watercourse becomes nothing but a cesspool, where *C. fatigans* thrives with unchecked propagation.

Then again, in a locality where there is no watercourse, the sewage is allowed to stagnate in unformed water channels; this results in the formation of cesspools. Many street water channels in water-served districts are intended to carry off storm water, yet, through being faultily constructed, "hold up" household sewage and provide fertile breeding-places for *C. fatigans*. Sewage stagnates in these channels, and only disappears when the level of the ground water sinks below the level of the drain.

In a sandy loam, where sewage may percolate through the soil for some distance, the subterranean sewage current becomes purified by bacterial treatment and consequently the sewage has reached such a state of purification that it may be discharged into a distant watercourse with little or no bad result.

There seems to be rather an indirect relation between the breeding-places of *C. fatigans* and rainfall. In certain areas, where there is no pipe-borne water supply, the only possible means of supply is that of the storage tank system. It is therefore evident that people are forced to use water frugally, which in turn results in a minimum amount of sewage discharge from houses. In fact, all the sewage from these houses is really disposed of on its own land, and this being so, the soil is not overtaxed on treating the sewage biologically. In other words, the pollution of a watercourse is proportional to the water supply. In the absence of a pipe-borne water supply, there is no sewage pollution of streams, and in the presence of water supply there is abundant contamination of streamlets with a maximum amount of breeding-grounds.

The action of rain on breeding-grounds of *C. fatigans* is also an important part of anti-mosquito work to be considered in Brisbane. Rain or a rural watercourse, or a watercourse flowing through a populated but not a pipe-watered district, has no effect whatever; it is rather beneficial, inasmuch as it aërates the water for the existing fishes. On the contrary, in a thickly populous area, where there is great sewage contamination of watercourses, the absence of rain takes really an influential part in the propagation of mosquitoes. In taking, for example, a few of our watercourses which receive nothing but sewage in dry weather, it is readily comprehended that a good storm flushing is beneficial as regards the purification of the water.

Comparatively large works have been started in regard to the "filling" of salt marshes, with the consequent minimisation of breeding-grounds of *Culicelsa vigilax*.

Some rather obscure breeding-grounds of mosquitoes were observed last year. Although foliage itself does not breed mosquitoes, yet the water collecting in the cavities of plants certainly does afford breeding-places. In the Botanic Gardens and some private grounds certain species of flowering pineapple-plants of genus *Bilbergia* have been seen to breed comparatively large numbers of mosquitoes. Fortunately, this plant has only been noticed in a couple of gardens; the two under consideration—viz., *B. phrysislora* and *B. portiana,* are capable of holding from an ounce of water up to about one pint. I have noticed the water contained in such species of plants to be infested with larvæ and pupæ of *Scutomyia notoscripta,* Skuse, and *Culex fatigans* s. sp. *skusii,* Giles. Thus, from a mosquito destruction standpoint, these plants should not be cultivated about houses. A couple of trees—*Poinciana regia*—in the Botanic Gardens have been observed to act as breeding-places for *S. notoscripta.* The trunk and the uncovered roots of this tree are so constructed as to hold a considerable quantity of water, probably derived from rain and dew, and as much as a couple of gallons of this liquid have been collected from the fork of one tree, in which there have been multitudes of larvæ of the aforesaid species. These trees have been prevented from further constituting breeding-places by the deposition of cement in the basins so formed.

Street gully traps still continue to be breeding-places of *C. fatigans* in a somewhat modified form. One septic tank, which was considered a very favourable breeding-place for the same species of mosquito, has been made mosquito-proof by the application of tight-fitting lids to the manholes, &c.

Of seventy-nine wells examined only two or three, which had been polluted by sewage, were observed to breed mosquitoes, *C. fatigans.* Wells, under ordinary conditions in Brisbane do not serve as breeding-grounds for mosquitoes, through some unknown reason. Probably it may not be due to the absence of sunlight but to the water being too clean, with a consequent absence of food for *C. fatigans;* on the other hand, *S. fasciata* never frequents water collections on the ground, so that there is reason to believe that wells, at present, do not form breeding-grounds owing to the strange habits of our mosquitoes. Notices in all cases were issued for the screening of these wells, irrespective of whether larvæ were seen or not.

Some Observations on the Efficiency of Larvicides.

It is generally considered that a larvicide should necessarily possess the following requirements:—It should be cheap, capable of destroying larvæ quickly, and, if possible, its toxity should not endanger higher animal life. From a series of experiments up to the present, limited though they may be, it indicates that oil remains the best larvicide. Rock oils—"Petrolite" and "Argolite"—have been used throughout the year. In a subtropical climate, such as Brisbane, a refined oil evaporates too quickly, although it is capable of forming an even film. On the contrary, very crude oils have been found utterly useless, inasmuch as they are unable to disperse in an even film over the water surface. As a medium between these two "Argolite" and "Petrolite" may be quoted.

Saprol.—This is a hydrocarbon preparation supplied by the Chemische Fabrik Flörsheim. When applied at the rate of half an ounce per square yard, against larvæ and pupæ of *Culex fatigans* W., it killed three pupæ in 7 minutes and rendered 50 per cent. of larvæ very sluggish in 15 minutes, killing them in 2 hours 10 minutes; all

larvæ except 10 killed in 24 hours, while 66 per cent. of pupæ were still alive. One pupa had hatched during the experiment.

Owing to its inefficiency as a larvicide, and also to the hatching of mosquitoes during the test, the experiment was not continued. The oil film is very uneven and breaks away on the slightest puff of wind, thus allowing larvæ and pupæ to survive through the hole-openings in the film, even under laboratory conditions.

Liquid Fuel Oil and Kerosene.—A mixture of this oil was submitted by Messrs. Burns, Philp, as agents for the British Imperial Oil Company. The mixture was applied against larvæ and pupæ of *C. fatigans.*

Used at the rate of half an ounce per square yard, it killed 76 per cent. of pupæ in 1 hour 40 minutes, and 7 per cent. of larvæ in 2 hours. After 18 hours' exposure there were 20 per cent. of pupæ and 78 per cent. of larvæ still alive. Observations at this stage were discontinued owing to the hatching of mosquitoes during the test.

When applied to the water surface, this oil collects in uneven masses, not diffusing until the water is agitated. Thus one may conclude that this mixture is quite useless as a larvicide, and so far it ranges last on the various larvicides which have been tested by me.

Cyanide of Potassium.—It has been asserted by Ross and Edie that a solution of 1 in 300,000 will kill larvæ of *Culex pipiens,* Linn., in a few hours; but Inspector Dudley found that even a solution of 1 in 17,500 had not the slightest effect on ova, larvæ, or pupæ of *C. fatigans.* I now submit the following extract of a letter dated 8th October, 1913, sent me by the Secretary of the Liverpool School of Tropical Medicine, which followed on a request for samples of cyanide of potassium pills as used by Sir Ronald Ross:—

"... I am informed by Sir Ronald Ross that these pills have been tried in the field and found to be a failure, owing to the fact that potassium cyanide evaporates with great rapidity in sunlight. ..."

The following larvicides have thus been tested as to their toxity on larvæ and pupæ of *S. fasciata,* F.:—'Cyllin, coal tar and terebinthine,' and 'Coal tar and petrol':—

Cyllin:—

1 in 50 killed all larvæ and pupæ in 5 minutes.

1 in 100 killed all larvæ in 9 minutes and all pupæ in 22 minutes.

1 in 300 killed larvæ in 12 minutes and pupæ in 38 minutes.

1 in 600 killed larvæ in 15 minutes and all pupæ in 68 minutes.

1 in 1,000 killed about 70 per cent. of larvæ in 15 minutes and the remainder of larvæ in 23 minutes. Twenty-five per cent. of pupæ dead after 5 hours, while the remainder were not affected.

1 in 1,250 killed about 70 per cent. of larvæ in 15 minutes and the remainder of larvæ in 27 minutes. No effect on pupæ.

1 in 2,500 killed about 50 per cent. of larvæ in 15 minutes, while the remainder were killed in 40 minutes. Pupæ not affected.

Soapy Emulsion of Coal Tar and Terebinthine.—My aim was to try and obtain an admixture from an economical standpoint; or in other words to make a larvicide in which the principal ingredient would be coal tar. Two parts of terebinthine to one part of coal tar caused the mixture to float and collect in small globules on the water surface, and yet a smaller proportion of terebinthine did not dilute the tar sufficiently. It was found that in order to make the solution heavy enough, so as to enable it to diffuse through water, a large amount of soap solution was required. Thus the only suitable larvicide which was obtained consisted of the following proportions:—

11 parts .. 1½ per cent. soap solution.
1 part .. coal tar.
2 parts .. terebinthine.

Results with this larvicide:—

1 in 50 killed all larvæ in 11 minutes and all pupæ in 1 hour 26 minutes.

1 in 100 killed all larvæ in 14 minutes and all pupæ in 2 hours 46 minutes.

1 in 150 killed 95 per cent. of larvæ in 14 minutes and the remainder of larvæ in 21 minutes. Thirty per cent. of pupæ were killed in 2 hours 56 minutes, the remainder dying over night.

1 in 300 killed 95 per cent. of larvæ in 16 minutes and the remainder of larvæ in 29 minutes. In order to prevent reiteration, it is here stated that with this strength, and consequently the following weaker solutions, the pupæ were not affected; they were hatching in *imagines* during the process.

1 in 600 killed 95 per cent. of larvæ in 21 minutes and all except three in 31 minutes, the remaining three larvæ being killed 10 minutes later.

1 in 1,000 killed about 75 per cent. of larvæ in 36 minutes and the remainder of larvæ in 1 hour 21 minutes.

1 in 1,250 killed 20 per cent of larvæ in 31 minutes and the remainder in 1 hour 36 minutes.

To recapitulate, I have taken 11 parts soapy solution, 1 tar, and 2 of terebinthine as a larvicide and estimated one part of that mixture in water. But since Lalor and Stewart have used tar as a base, it is readily seen that 1 part of coal tar (in the above solution) in 1,250 is equal to a mixture of 14 parts (comprising tar, soap, and terebinthine) in 1,250 or approximately 1 in 90. Therefore, the results of the nearest approach to this solution—*i.e.,* 1 coal tar in 1,250—will be found under a strength of 1 part of the larvicide in 100 parts of water.

Soapy Emulsion of Coal Tar and Petrol.—It appears impossible to obtain an emulsion of these substances owing probably to the petrol not being miscible in coal tar either under heat or at atmospheric temperature. The soapy emulsion certainly has the property, after vigorous agitation, to carry in suspension small globules of tar, but which only precipitate after a very short time. A mixture even of this kind when placed in water resulted in the rapid precipitation of tar.

La Prince's Larvicide.—La Prince, in his paper entitled, "Anti-malarial Work on the

A Range of Ship's Tanks. Dilapidated, but the majority of them still holding enough water to breed mosquitoes.

Swamp Reclamation. The steam-shovel loading tip-drays at Rosetta Swamp.

Isthmus of Panama," cited by Ross in his "Prevention of Malaria," page 357, recommends the following larvicide:—

"Crude carbolic acid containing about 15 per cent. of phenol is heated to 212° F., finely pulverised resin is added, and the mixture kept boiling until the resin is all dissolved. Caustic soda is then added and the solution kept at 212° F. for about ten minutes or until a perfectly dark emulsion without sediment is obtained. The mixture is thoroughly stirred from the time the resin is added until the end."

One part of this larvicide in 5,000 is stated to kill mosquito larvæ (sp.?) in less than five minutes, and 1 in 8,000 will kill them in 30 minutes.

Experiments carried out with this larvicide seem to vary considerably, owing probably to the specific gravity of phenol used. In 1912 Dr. Elkington, then Commissioner of Public Health, had a solution similar to the above formula prepared, but it was found that an emulsion without sediment could not be obtained.

NATURAL LARVICIDAL AGENTS.

Lemna.—Many observers have noted that an excessive growth of *Lemna,* an aquatic plant commonly known as "duckweed," is inimical to mosquito larvæ; an entire coating of this plant on the water surface is said to possess larvicidal properties, probably by a mechanical means. Adie has noted *Anopheline* larvæ to be entirely excluded from water by the growth of *Lemna minor* over a breeding-place.

It seems rather strange that two species of the same genus should have such a marked effect on mosquito breeding-places, for in Brisbane I have observed many swamps, covered with an entire coating of *L. oligorrhiza*, in which larvæ of *Culex fatigans* and *Nyssorhynchus annulipes*, Walker, have been found.

I am not aware of there being record as to the action of *Lemna* on *Culicine* larvæ, although there has been abundant confirmatory evidence on Anopheline larvæ. In view of the fact, therefore, that Anopheline larvæ are very rare in the vicinity of Brisbane, larvæ of *Culicinæ* will almost invariably be found in those water collections covered with *Lemna.* It is clearly seen that *Anopheline* larvæ require more water-surface area when breathing than do *Culicine* larvæ, owing to the fact that the former rest horizontally with their whole dorsal bodies in contact with the surface film while *Culicine* larvæ hang downwards, thus only requiring a surface area of about .25 sq. mm. From this it may be inferred as highly probable that larvæ of *Culicinæ* can find enough water-surface area between the interstices of the leaves of *Lemna,* whereas *Anopheline* larvæ cannot, or very seldom, find room.

Fish.—In consequence of the nature of our breeding-places in Brisbane, little has been done in the way of stocking water collections with fish. It is hardly to be expected that the introduction of fish into any collection of water will result in the extermination of all the mosquitoes. It has been absurdly remarked to me once during the petrolisation of a contaminated watercourse: "If we have so many valuable species of insect-eating fishes why not stock all collections of water with them?" I assume this sentence referred to the sewage contaminated spot. The answer was, of course, that the fish required oxygen as well as we humans do, and that oxygen was not present in sewage.

There can be no doubt, however, that our fish are solely responsible for the absence of *Anopheline* in Southern Queensland.

In only two instances have fish been introduced into water collections, and these water collections were the only clean collections found to be breeding mosquitoes; both were artificial receptacles and could not be treated, as the ordinary rainwater tanks can be, by screening.

An old iron ship's tank used in the Botanic Gardens for aquatic plants had always continued to breed large numbers of larvæ of *Culex fatigans, Scutomyia notoscripta,* and *Stegomyia fasciata.* Half a dozen fish—*Priopis olivaceus*, Ogilby—were put into the water some twelve months ago. Since then the water has been carefully examined for the presence of larvæ periodically, with negative results. Moreover, the fish have multiplied freely.

In another instance a number of fish—*Rhombatractus fitzroyensis,* Castelnau—were put into a freshwater swimming bath; the bath itself was constructed of white glazed tiles and was capable of holding 23,000 gallons of water. As a result of the introduction of fish, *Stegomyia* (?) larvæ are reported to have quickly disappeared.

THE DIFFUSION OF MOSQUITOES.

The migration of different species of mosquitoes makes matters somewhat difficult, especially in the location of certain breeding-grounds. In Birsbane, *C. fatigans* seems to be possessed of rather an extraordinary power of flight; but to what extent its breeding-place is likely to affect the mosquito density around it is rather difficult to state. It is obvious that mosquitoes in the immediate vicinity of the breeding-place will be in greater density than a further distance away; and again, the diminution will predominate over the part, progressively less as we radiate from the breeding-centre and none at all at a sufficiently long range from it. Moreover, it is clearly comprehensible that the greater the breeding-place the greater will be the mosquito density at its centre, and that on the other hand, with a small patch, numbers of mosquitoes are capable of migrating across the field, though, of course, proportionally much lessened. In other words, mosquitoes tend to diminish from their breeding-place, and that local diminution is proportionally less the smaller the breeding-place. It is, however, a difficult problem to ascertain the rate of decline in mosquito density from a single breeding-point. The rate would also be governed very considerably by habitation, for in a vacated house mosquitoes would not congregate so much as in an inhabited residence.

It has clearly been demonstrated throughout the year that septic tanks are capable of supplying mosquitoes (*C. fatigans*) to a very large area. It was found that the sewage in the liquefying chamber of Wattlebrae septic tank was literally swarming with mosquito larvæ of *C. fatigans*, and presumably the cause of a great mosquito nuisance both to neighbouring houses and to the adjacent Brisbane General Hospital.

The screening of the tank by tight-fitting manhole covers, &c., has brought about a marked reduction of *C. fatigans* in dwellings about half a mile from this tank; this is a matter which speaks for itself, and should be specially noted as regards the diffusion of the above species of mosquito.

Description and Bionomics of Stegomyia fasciata.

It is undoubtedly a subject of hygienic importance in taking up the question of checking the invasion of yellow fever into Queensland that medical officers of health should be capable of determining whether the carrying agent of yellow fever is or is not present in the various towns and townships of Queensland.

It is rather an easy matter to identify *Stegomyia fasciata*. Although microscopic characters are essential in the differentiation of closely related species, yet the following distinctive characters can readily be followed by the aid of a pocket lens:—

Stegomyia fasciata, Fabricius (1805):—Head dark with a distinct double median line and with lines laterally and around the eyes; ♀ palpi black and tipped with silvery white; ♂ palpi thin, alternately banded black and white; proboscis black, in contradistinction to the white-banded one in *Scutomyia notoscripta*, Skuse. Thorax brown, showing *two silvery white broad lateral curved lines* which converge from in front towards the middle of the mesothorax, and thence continued back as thinner parallel lines to the scutellum; in the middle there are two parallel yellowish or whitish lines extending about half-way across the mesonotum and more or less on the scutellum, a short white line anteriorly between these two, a white spot on each side of the thorax in front near the neck. In short, the whole thoracic markings resemble the pattern of a Greek lyre with median strings. Scutellum very marked, being clothed with silvery white scales. Pleuræ with several patches of brilliant white scales.

Abdomen dark, the segments basally banded with white. Legs with femora pale at the base and down one side, with a silvery-white line in front and a white apical spot; tibiæ black, also marked by a pure silvery-white longitudinal line; on the fore and mid legs there are two white tarsal bands and in the hind pair there are five white bands, the last tarsus being almost wholly white.

Wings darkly scaled, with the first submarginal cell (upper fork cell) distinctly larger and narrower than the second posterior cell (second fork cell) and its base very slightly nearer the root of the wing than that of the latter.

Length, 4 to 5 mm.

Information is lacking as to the presence or otherwise of *S. fasciata* in various Queensland towns, and therefore a more exact knowledge of its exact distribution in this State is a matter of considerable practical importance. It has, however, been located at Townsville and Thursday Island, and also other coastal towns of Queensland.

During all my searches for the larvæ of this species I have never found them in water lodging on the ground. Thus they occur in artificial collections of water comprising rain-water tanks, roof gutters, garden water barrels, tin cans, saucers under safe legs, flower-pot saucers, water-holding plants, bedroom water jugs, and any other such collections of water. The size of the vessel in which larvæ are found only affect the question of the total number of insects. The presence of but three or four larvæ in a tablespoonful of water, contained perhaps in a small plant, is of no less significance than the presence of hundreds of larvæ in a tank; for it demonstrates how ubiquitous this species must be. *S. fasciata* prefers clean waters to foul ones, and, unlike *C. fatigans*, it will never be found in cess-pits or septic tanks.

This insect deposits from thirty to eighty eggs on the water at a time. They are a jet black colour, and macroscopically cylindrical in shape, one end being rounded and blunt while the other is slightly pointed, the whole resembling the shape of a cigar. They are ·65 mm. by ·17 mm. Under a low power the surface of the ovum is seen to be covered with a delicate reticulated membrane. When viewed from a lateral aspect it is somewhat concavo-convex.

One noteworthy fact is the resistance of *Stegomyia* eggs to various climatic conditions, for they are capable of withstanding long dessication. Ova kept in a dry state for three months and afterwards submerged in water have promptly hatched. Theobald (*Mono. Culicid.* iii.) has received eggs in England sent from Cuba, in a perfectly dry test-tube, and after a period of three months they were transferred to tepid water whence they gave rise to actively mobile larvæ. Freezing also does not destroy the fertility of the ova. The resistance of *Stegomyia* eggs to drying for long periods is a fact that should be carefully noted in reference to cleaning out water barrels and other water containers.

The impregnated ♀ after having a meal of blood appears to deposit her ova after an interval of about from forty-eight hours to five days, and sometimes a second or a third meal of blood is taken before oviposition follows. The incubation period under suitable temperature is from two to four days. The larval existence is from seven to ten days in summer, but prolonged to many weeks in winter.

The larva of *S. fasciata* does not bear much resemblance to that of *C. fatigans*, inasmuch as it possesses a short barrel-like breathing tube and hangs almost perpendicularly from the water surface in contradistinction to the elongated siphon of *C. fatigans* and the angle assumed by its body from the water surface, which is about 45°. The pupæ of *S. fasciata* and *C. fatigans* very much resemble one another in general appearance, but in the former the breathing trumpets are roughly triangular, whereas in the latter they are elongated.

S. fasciata is strictly a house-frequenting species and naturally selects water near at hand. It is a species which bites indoors in the daytime, but, when starved, it will certainly not hesitate in having a nocturnal meal.

Swamp Reclamation. The work in progress.

Swamp Reclamation. The steam-shovel working on the face.

A very important point brought about by the United States Army Commission of Cuba during the years 1900 and 1901 is that an interval of about twelve days or more after infection appears to be necessary before the infected *S. fasciata* is capable of conveying the virus of yellow fever to a susceptible individual. Repeated experiments made by that commission with insects, which had bitten yellow fever patients two to ten days previously, were always negative, although these same insects were proved capable of transmitting the disease after having been kept until seventeen to twenty-four days had elapsed. Further, their observations demonstrated that mosquitoes which have been kept for periods varying from thirty-nine to fifty-seven days after infection were still capable of conveying the disease, and that infected *Stegomyiæ* can survive for a period of at least seventy-one days.

As this mosquito is a noted follower of trade routes, it is readily comprehensible how the infection of yellow fever may cling to ships although passengers do not show any symptoms.

If a case of yellow fever were imported into one of our coastal towns we should be prepared to attack the enemy. The problem resolves itself into the simple one of the destruction of *S. fasciata*. What has already been said concerning the bionomics of this mosquito should sufficiently indicate the general hygienic measures that should be taken in order to check the spread of yellow fever. It is quite unnecessary to say that Queensland has no protection against the spread of yellow fever, provided rainwater tanks, roof gutters, and other such collections of water are present in which *S. fasciata* may breed.

Queensland Culicidæ.

In order that a campaign against mosquitoes may be conducted intelligently, it is necessary that the individual controlling operations shall be conversant with the various species prevalent in the area in which it is proposed to operate.

In Queensland up to the present time some forty species have been described by different observers, but the systematic work attempted lately in connection with anti-mosquito measures has placed some of these described species as synonyms of other species which have been known to transmit malaria.

As the descriptions of the observers referred to are scattered over a mass of biological and other works inaccessible to the majority of interested persons, it is considered that the following list culled from the various authorities is likely to afford assistance to those officers who may not have facilities for consulting them.

This list furnishes under one cover all of the work upon the subject which has been completed up to the present time, in Queensland.

The following genera are known in Queensland:—*Myzorhynchus, Nyssorhynchus, Anopheles, Pyretophorus, Toxorhynchites, Mucidus, Stegomyia, Pseudoskusea, Scutomyia, Macleaya, Pseudohowardina, Danielsia, Gilesia, Grabhamia, Culicada, Culicelsa, Culex, Tæniorhynchus, Chrysoconops, Finlaya, Ædeomyia, Skusea, Uranotænia, Anisocheleomyia.*

It may be said that the following two species are domestic forms *par excellence*:—*Culex fatigans* and *Stegomyia fasciata*. While these and many others are perennial, others are abundant only at certain times of the year. Some species are day fliers (*S. fasciata*, F., indoors and *C. vigilax* outside), being most prevalent before midnight. On no account will *C. fatigans* be found biting in the daytime.

Nyssorhynchus annulipes, Walker (1850), is rather uncommon in the vicinity of Brisbane and never being present in sufficient numbers as to constitute a nuisance. It is very abundant in the malarious parts of Northern Queensland, and is in all probability the disseminating agent of the malarial parasites from man to man in that district. Kinoshita, working in Formosa (1906) proved that this species of *Anophelinæ* is capable of transmitting malignant tertian.

Myzorhynchus barbirostris, Van der Wulp (1884), var. *bancrofti*, Giles (1902). This species is said to be common throughout the Northern Territory but scarce in the vicinity of Brisbane, where I have only taken four ♀'s biting in a shrubbery at Albion. Mr. F. Taylor, in the "Annual Report of the Australian Institute of Tropical Medicine for 1911," states that he examined *M. bancrofti*, G., along with numerous specimens of *M. barbirostris*, W., from Philippine Islands, and he concludes that it must be sunk to a varietal rank.

Stephens and Christophers (1902) experimentally proved *M. barbirostris* to be capable of developing malignant tertian. It is therefore a question whether it is responsible for the transmission of the other parasites of malaria in Northern Queensland.

Pyretophorus atratipes, Skuse (1888). This is a rare and obscure species in the vicinity of Brisbane.

Anopheles corethroides, Theobald (1907). Extremely uncommon about Brisbane.

Toxorhynchites speciosa, Skuse (1888). This mosquito is very rare in the vicinity of Brisbane; it has, on a few occasions, been taken from a water barrel surrounded by thicket. Its additional haunts are Kingston (Inspector Burton), where it was found in scrub country and Mungana (Inspector Wright), where it was found breeding in an old iron tank. This insect not only *does not bite* but its larvæ destroy numerous noxious forms of *Culicidæ*, feeding on larvæ of *Culex fatigans* and *Scutomyia notoscripta*, amongst which they are found.

Mucidus alternans, Westwood (1835). One of our largest day-flying species breeding with *Culicelsa vigilax*, S., in salt marshes about the coast of Queensland. Its larvæ are very destructive to other mosquito larvæ and will, in the absence of such food, devour its own species. In Queensland it is known as the "Scotch Grey," while in New South Wales it receives the name of "Hexham Grey."

Stegomyia fasciata, Fabricius (1805). A very prevalent and annoying species of Brisbane, and the coastal part of Queensland in general.

Stegomyia punctolateralis, Theobald (1903). Extremely scarce about Brisbane, but breeding in water butts, &c.

Pseudoskusea similis, Theobald (1910). Observed only at Kuranda (Bancroft), Badu Island, Torres Straits, and Lucinda Point, Somerset (F. Taylor).

Pseudoskusea multiplex, Theobald (1903). Rare about Brisbane, only a few specimens found biting at Auchenflower near a tidal gutter.

Pseudoskusea basalis, Taylor (1913). Only four ♀'s caught biting at Cooktown (F. Taylor).

Scutomyia notoscripta, Skuse (1888). This mosquito closely resembles *Stegomyia fasciata*, but possesses a banded proboscis and other small details. It abounds more or less throughout the year in the shade of shrubberies and gardens, and bites in the daytime; its larvæ are found in water-holding plants, water butts, and other receptacles about gardens.

Macleaya tremula, Theobald (1903). An extremely rare species of Queensland.

Pseudohowardina lineatis, Taylor (1911). Found at Ching Do and Townsville (F. Taylor).

Danielsia minuta, Taylor (1912). Found at Wandi, Northern Territory (F. Taylor).

Danielsia alboannulata, Taylor (1912). Found at Wandi, Northern Territory (F. Taylor).

Gilesia aculeata, Theobald (1903). A very rare species of Southern Queensland.

Grabhamia flavifrons, Skuse (1888). Only one species has been found throughout last year, biting in Victoria Park.

Culicada vittiger, Skuse (1888). Comparatively rare in the neighbourhood of Brisbane, breeding in temporary rainwater pools.

Culicada burpengaryensis, Theobald (1905). Found at Burpengary (Dr. Bancroft).

Culicelsa alboannulata, Macquart (1850). Rather rare in the vicinity of Brisbane, its larvæ being found breeding in rainwater pools.

Culicelsa vigilax, Skuse (1888). An extremely common "salt marsh" or "black bush mosquito," constituting from 75 to 85 per cent. of the entire number of mosquitoes found along the sea coast. It is a vicious biter and very plentiful in gardens and shrubberies. The only consolation about this species is that it seldom enters houses, although it occurs on verandahs.

Culicelsa annulirostris, Skuse (1888). Another species breeding in salt marshes throughout the winter months. It is not present in such numbers as *C. vigilax*, although occasionally small invasions of it are felt.

Culicelsa linealis, Skuse (1888). A very uncommon species of Brisbane, biting only in thickets about Kedron Brook and Albion.

Culicelsa abdominalis, Taylor (1911). Found at Townsville and Ayr, North Queensland (F. Taylor).

Culicelsa consimilis, Taylor (1911). Found at Ayr, North Queensland (F. Taylor).

Culicelsa paludis, Taylor (1911). Taken at Townsville, North Queensland (F. Taylor).

Culex fatigans, Wiedemann (1828). This is the common household pest of Brisbane and Queensland in general, breeding in street gully traps and other sewage collections; it is the intermediary host of *Filaria bancrofti*.

Culex rubithorax, Macquart (1850). This specimen is rather scarce about the vicinity of Moreton Bay, and Ithaca Creek, Kelvin Grove, and Enoggera.

Culex tigripes, Grandpré and Charmoy (1900). This mosquito is never plentiful, yet it breeds abundantly in street gully traps and also in tin cans in company with *C. fatigans*. Its larvæ are very carnivorous, feeding on those of *C. fatigans*; the adult insect does not seem to exercise any sanguinary habits in Queensland.

Culex occidentalis, Skuse (1888). This mosquito is a very rare species of the sylvan type.

Culex pseudomelanoconia, Theobald (1907). Very rare, found biting in scrub country at Burpengary (Dr. Bancroft).

Culex procax, Skuse (1888). A very rare species of Burpengary (Dr. Bancroft).

Culex cylindricus, Theobald (1903). This species is never plentiful, although a few specimens may be observed biting in scrub country at Albion and Enoggera.

Culex parvus, Taylor (1912). Found at Umbrawarra Creek, Northern Territory (F. Taylor).

Culex palpalis, Taylor (1912). Found at Umbrawarra Creek (F. Taylor).

Culex saibaii, Taylor (1913). Found at Saibai Island (F. Taylor).

Culex somerseti, Taylor (1913). Found at Somerset (F. Taylor).

Tæniorhynchus uniformis, Theobald (1901). Rather uncommon in the vicinity of Brisbane; found biting in open forest country at Bellevue.

Chrysoconops acer, Walker (1848). A very rare species, nevertheless occasionally coming in small invasions into houses in the vicinity of Bulimba.

Finlaya poicilia, Theobald (1903). Very scarce in the neighbourhood of Brisbane, but rather common about Johnstone River.

Ædeomyia venustipes, Skuse (1889). Found at Townsville (F. Taylor).

Skusea funerea, Theobald (1903). Found in scrub country about Deception Bay.

Uranotænia pygmæa, Theobald (1901). Rather rare in the vicinity of Deception Bay, Burpengary, and Enoggera (Bancroft).

Anisocheleomyia nivipes, Theobald (1905). An extremely rare species of Southern Queensland.

L. E. COOLING,
Assistant Inspector in Charge of Mosquito Operations.

A Contrast in the Breeding Habits of Mosquitoes. The two liquid-manure barrels in the background are the breeding-places of *Culex fatigans;* whilst the tank and barrel under the standpipe comprise the breeding-ground of *Stegomyia fasciata.*

A Row of Water Barrels. Typical haunt for the larvæ of *Stegomyia fasciata.*

APPENDIX I.

REPORT OF NORTHERN OFFICE.

ANNUAL REPORT OF THE NORTHERN SUB-OFFICE, HEALTH DEPARTMENT, TOWNSVILLE, FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

SIR,—I have the honour to submit herewith the following report on the work of the Northern Sub-Offiee Staff for the year ending the 30th June, 1914.

The Medieal Inspeetor, North Queensland, Dr. Booth Clarkson, resigned his position and handed over charge on the 31st Oetober, 1913.

PLACES VISITED.

The following towns were visited by the Medieal Inspeetor or the three inspeetors of this offiee in respeet to general sanitary matters, and reeommendations were made to the various Loeal Authorities where neeessary. The matter of pure food supply also received speeial attention:—Alligator Creek, Almaden, Atherton, Ayr, Ayrdale, Balfe's Creek, Bowen, Bowen River, Brandon, Cairns, Cardross, Cardwell, Chillagoe, Cloneurry, Cooktown, Duehess, Eimee, Eton, Eungella, Euri, Fineh-Hatton, Friezland, Halifax, Hambledon Junetion, Herberton, Homebush, Homehill, Homestead, Hughenden, Ingham, Inkermann, Innisfail, Kalmaia, Kuranda, Laura, Lueinda Point, Maekay, Malbon, Marabah, Mareeba, Marian, Meeba, Merinda, Mirani, Mossman, Mungana, Nebo, Nelson, Pentland, Pioneer, Port Douglas, Proserpine, Prairie, Ravenswood, Ravenswood Junetion, Roekwood, Sarina, Selwyn, Tolga, Walkerston, Wondecla.

SANITARY INSPECTIONS.

Some 2,114 premises were visited and 570 Blue Notiees issued ealling for struetural and other alterations or to the observanee of the provisions of the Health Aets generally. Frequent reinspeetions were also made to aseertain to what extent the notices had reeeived attention.

FOOD INSPECTIONS.

A large amount of time has been devoted to this braneh of work, and 2,306 business premises were inspeeted; 352 notiees were issued respeeting the Department's requirements for bringing up to standard premises utilised for the manufaeture of foods for human eonsumption.

Samples of various foodstuffs have been taken for analysis or examination in different parts of the Northern Area and legal aetion instituted when goods were found below the required standards.

Over 5 tons of unsound food have been destroyed in aeeordanee with the provisions of the Aet, this amount being made up from a number of small quantities found in various small stores in all parts.

Detailed partieulars appear on pages 49 to 53 of the Chief Food Inspeetor's report.

WATER SUPPLIES.

The Townsville City Counеil appear to be making strenuous efforts to improve the water supply. At the present time the power plant is being extended, and it is the intention of the Council to instal a system of filtration if the proposed loan is granted. This filtration method will eertainly be unique in North Queensland. Although water is not generally supplied for the sake of gain, it is eertainly paid for, and the ratepayers, espeeially business people engaged in the manufaeture of beverages, naturally expect to obtain an abundant supply of potable water.

SANITARY CONVENIENCES.

As far as possible attempts are being made to bring these struetures up to a eertain degree of perfeetion. This is only possible when new struetures are being ereeted or when alterations or repairs become neeessary, and in this respeet the provisions of the Sanitary and Nightsoil Disposal Regulations prove of mueh assistanee. It is a notieeable faet that in towns where the eouneils have obtained the extension of these Regulations there has been a diminution of infeetious disease.

HOSPITALS.

With a view to providing for possible outbreaks of disease, sites for the ereetion of emergeney hospitals have been loeated at a number of Northern towns. The obtaining of an emergeney staff seems to be a more diffieult question, but resident medieal offieers freely assist the Department in sueh matters.

RESERVE STAFF AND EMERGENCY SUPPLIES.

Reserve staffs have so far not been established on aeeount of the diffieulty experieneed in persuading suitable and reliable persons to fall in with the proposition.

Quotations have been obtained from time to time from merchants for the supply of provisions and equipment in the event of outbreaks of disease oeeurring, but many artieles are not quoted for on aeeount of market fluetuations.

The matter of registration of private hospitals as provided for by the Health Aets appears to have reeeived attention at the hands of the Local Authorities in whose area they are situated.

GOVERNMENT PROPERTY.

A monthly inspeetion and airing of the artieles stored at the Old Plague Hospital is earried out. This stock was added to from the greater bulk of artieles previously in use in eonneetion with the Maekay diphtheria outbreak.

MILEAGE TRAVELLED BY THE STAFF.

The total mileage eovered by the inspeetors of this Sub-Offiee during the year amounted to 8,181 miles.

COUNCIL'S SANITARY INSPECTORS.

The numerous and varied duties usually allotted to inspeetors of Loeal Authorities leave little or no time for the proper supervision of

health requirements, which is a matter that calls for the serious consideration of the councils' health committees. Many inspectors hold no sanitary certificate, and are unfitted through lack of proper technical training to carry out their duties. Useful information regarding the necessary work of inspectors is freely given whenever desired.

Infectious Diseases.

The total number of cases of infectious diseases throughout the North was 515, typhoid fever claiming 215, and diphtheria 198 cases.

The Townsville statistics appear large, but the fact of it being a main centre and having special facilities for the treatment of infectious and tropical diseases would answer for a number of cases, many persons coming from inland towns where they have contracted disease.

At the recent investigations into the outbreak of typhoid at Rockwood, anti-typhoid inoculation was strongly advocated; in fact, this course is recommended whenever a district in which typhoid has occurred is visited.

During the month of August, 1913, a public vaccination booth was opened in the Town Hall Buildings, Townsville, and 635 persons were vaccinated. Only one suspected case of smallpox occurred here, and medical practitioners throughout the North were kept constantly supplied with vaccine through this office. An emergency supply of effective lymph is always retained here in cold storage.

Rat Infestation.

The number of rats destroyed at Townsville by the Department's ratman was 2,899. Active measures have been taken at the wharves in the matter of insisting on rat guards being used on vessels. Baits and traps have been regularly laid on the wharves and throughout the city, and smears have been periodically submitted for bacteriological examination. In the event of any abnormal appearances in the viscera of rats examined, smears were immediately submitted to the Medical Officer of Health or to the Australian Institute of Tropical Medicine. For a considerable period of the year the Townsville Council dispensed with the services of their ratman and adopted the system of paying 3d. per capita for all rats brought to the City Inspector; this accounts for a reduced annual return. The system proved an entire failure, and now the Council has, in conjunction with the Townsville Harbour Board, appointed a permanent ratman to carry on the work as formerly.

The species of the rats caught were as follows:—Mus rattus, 117; Mus decumanus, 2,509; Mus alexandrinus rufus, 273; total, 2,899.

The Australian Institute of Tropical Medicine.

Various specimens of mosquitoes, flies, and other interesting subjects have from time to time been submitted to the Institute, these having been collected by inspectors whilst on tour. The Institute has generously contributed to the specimens kept by the Northern Sub-Office, and has at all times assisted the work of this Sub-Office by furnishing much technical information.

Yours, &c.,

S. B. COTTLE,
Officer in Charge.

The Commissioner of Public Health, Brisbane.

Summary of Notices of Breaches of the Health Acts notified to Local Authorities during Twelve Months ended 30th June, 1914.

Place.	Food.		Sanitary.	
	Served.	Completed.	Served.	Completed.
Ayr	16	47*	42	..†
Bowen	7	25*	..	..
Cairns	61	54	..	..
Chillagoe	26	41*	245	245
Cloncurry	..	12*	..	9†
Cooktown	11	..†	..	..
Herberton	6	6	213	136
Innisfail	4	13*	..	..
Mackay	27	80*	1	..
Mackinlay	..	..	..	10†
Nebo	2	..†	..	..
Pioneer	17	22*	..	..
Proserpine	..	20*	..	..
Prairie	2	..†	..	..
Ravenswood	13	30*	..	..
Townsville	158	224*	99	81
Walkerston	2	9*	..	..
Totals	352	583	600	481

* Some Notices from last year.

† Re-inspections to be made.

DISTRIBUTION OF CASES OF INFECTIOUS DISEASES FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

—	Cerebro Spinal Meningitis.	Typhoid.	Scarlet Fever.	Puerperal Fever.	Diphtheria.	Erysipelas.	Phthisis.	Ankylostomiasis.	Infantile Paralysis.	Variocella.	Total.
Ayr	..	11	..	..	..	..	1	..	..	..	12
Bowen	..	3	..	..	1	..	3	..	1	..	8
Cairns	..	..	..	..	..	..	1	..	..	1	2
Carpentaria	..	1	..	..	..	..	..	..	..	..	1
Charters Towers	..	27	1	..	24	2	1	..	..	7	62
Chillagoe	..	2	..	..	3	..	1	2	..	..	8
Cloncurry	..	28	..	..	4	3	3	..	..	..	38
Cooktown	..	..	..	..	..	..	1	..	..	..	1
Croydon	..	..	..	..	..	..	2	..	..	..	2
Douglas	..	..	..	..	..	..	5	6	..	1	12
Eacham	..	2	..	..	..	..	..	..	..	1	3
Einasleigh	..	3	..	..	1	..	..	..	..	..	4
Flinders	..	6	..	..	..	..	..	..	..	..	6
Herberton	..	5	..	..	9	..	2	1	..	..	17
Hinchinbrook	..	1	..	..	5	..	..	2	..	2	10
Ingham	..	..	..	..	2	..	..	1	..	..	3
Johnstono	..	..	..	..	..	..	..	3	..	..	3
Mackay	..	11	..	..	66	13	13	3	..	..	106
Mackinlay	..	12	..	1	2	..	..	..	..	..	15
Pioneer	..	5	..	..	27	2	..	..	..	..	34
Queenton	..	9	..	..	11	..	2	..	..	2	24
Ravenswood	..	2	..	..	..	..	..	..	..	..	2
Sarina	..	3	..	..	..	..	..	..	..	..	3
Thuringowa	..	2	..	..	7	1	..	..	..	..	10
Tinaroo	..	5	..	..	1	..	..	..	..	..	6
Townsville	..	31	1	..	34	..	4	5	..	..	75
Walsh	..	11	..	..	..	..	..	..	..	..	11
Winton	1	34	..	..	1	..	..	..	..	..	36
Woothakata	..	1	..	..	..	..	..	..	..	..	1
Totals	1	215	2	1	198	21	39	23	1	14	515

RETURN OF VACCINE ISSUED FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

Doctor's Name.	Place.	Lymph Supplied.		
		Vials.	Div. Vials.	Tubes.
Dr. Craig	Ayr	1	2	11
Dr. Maxwell	Atherton	1	2	12
Dr. Cormac	Bowen	2	2	12
Dr. Gillies	Bowen	2	2	9
Health Officer	Bowen	1	2	12
Health Officer	Burketown	1	..	..
Dr. B. Tyrie	Cairns	5	2	36
Dr. Kerwin	Cairns	2	5	12
Dr. Knowles	Cairns	2	2	12
Health Officer	Camooweal	2	2	6
Dr. Streeter	Charters Towers	1	4	12
Dr. Huxtable	Charters Towers	3	2	12
Dr. Redmond	Charters Towers	1	2	15
Dr. W. Stevens	Charters Towers	1	2	12
Dr. Forrest	Charters Towers	1	2	162
Medical Superintendent, Hospital	Charters Towers	2	2	6
Shire Clerk	Cardwell	5	2	..
Dr. Moni	Chillagoe	2	2	18
Health Officer	Cloncurry	1	2	6
Dr. Kortüm	Cooktown	1	3	24
Police Magistrate	Croydon	..	3	38
Dr. Braccer	Croydon	1	2	16
Dr. Robinson	Duchess	..	..	10
Dr. Connell	Einasleigh	1	2	9
Medical Superintendent, Charleston	Forsayth	1	2	6
Dr. Hunter	Friezland	2	2	6
Dr. Money	Georgetown	1	4	12
Dr. Smith	Herberton	1	2	12
Dr. Willis	Hughenden	2	2	6
Dr. Powell	Ingham	1	4	90
Dr. Willis	Innisfail	2	2	10
Dr. Williams	Mackay	2	2	12
Dr. Chenoweth	Mackay	2	2	12
Dr. Hoare	Mackay	2	2	12
Dr. Stuart Kay	Mackay	2	2	12
Dr. Savage	Mareeba	1	2	12
Dr. Turner	Mungana	1	..	..
Secretary Hospital	Normanton	1	2	6
Dr. Anderson	Proserpine	2	2	6
Dr. Clarke	Port Douglas	1	2	6
Dr. Smyth	Ravenswood	..	..	4
Carried forward	..	63	85	686

RETURN OF VACCINE ISSUED FROM 1ST JULY, 1913, TO 30TH JUNE, 1914—*continued.*

Doctor's Name.	Place.	Lymph Supplied.		
		Vials.	Div. Vials.	Tubes.
Brought forward	..	63	85	686
Dr. Bourke	Richmond	1	..	9
Dr. Bennett	Selwyn	2	4	6
Dr. Jamieson	Stannary Hills	1	2	12
Dr. Ross	Townsville	1	2	7
Dr. Humphry	Townsville	1	1	39
Dr. Ahearn	Townsville	1	1	15
Dr. Trenow	Townsville	..	1	12
Dr. Chapman	Townsville	..	..	12
Dr. Parkinson	Townsville	..	..	25
Dr. Nisbet	Townsville	5	9	45
Tropical Institute	Townsville	..	..	8
Dr. Vernon	Winton	1	2	12
		76	107	888
Public Vaccinations	..	31	1	42
Total	..	107	108	930

RETURN OF PERSONS VACCINATED FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

Doctor's Name and Place.	WHITES VACCINATED.					ABORIGINALS.				
	Adults.	Children.	Successful.	Failures.	Total.	Adults.	Children.	Successful.	Failures.	Total.
Dr. Jamieson, Stannary Hills	3	..	1	2	3	..	..	..	..	..
Dr. Bourke, Richmond	4	1	..	..	5	..	..	..	..	..
Dr. Connell, Einasleigh	3	..	1	2	3	..	..	..	..	..
Dr. Braccer, Croydon	14	10	..	..	24	..	..	..	..	..
Dr. Bennett, Selwyn	1	..	..	..	1	..	..	..	..	..
Dr. Willis, Innisfail	7	..	..	..	7	..	..	..	..	..
Dr. Willis, Cardwell	56	..	..	..	56	38	..	..	..	38
Dr. Baxter-Tyrie, Cairns	142	..	..	..	142	..	..	..	..	..
Dr. Clarke, Port Douglas	36	..	36	..	36	8	..	8	..	8
Dr. Gillies, Bowen	9	3	5	7	12	50	6	56	..	56
Dr. Kortüm, Cooktown	41	139	48	33	180	106	29	69	3	135
Dr. Nicoll, Townsville	21	..	9	12	21	..	..	..	..	..
Dr. Bourke, Richmond	14	1	15	..	15	..	..	..	..	..
Medical Superintendent, Hospital, Charters Towers	73	..	37	36	73	..	..	..	..	..
Dr. Nisbet, Townsville	1,106	..	..	..	1,106	..	..	..	..	..
Doctor, Public Vaccination, Townsville ..	373	262	398	237	635	..	..	..	..	..
Totals	1,903	416	550	329	2,319	202	35	133	3	237

NUMBER OF RATS AND MICE CAUGHT OR COLLECTED AND EXAMINED.

1913–1914.	Destroyed.			Examined.			M.D.	M.R.	M.A.R.
	Rats.	Mice.	Total.	Rats.	Mice.	Total.			
July	15	..	15	156	..	156	121	5	30
August	10	3	13	275	..	275	257	7	11
September	4	..	4	206	..	206	166	7	33
October	..	1	1	170	..	170	152	12	6
November	10	..	10	208	..	208	180	9	19
December	20	..	20	209	..	209	195	9	5
January	14	5	19	224	..	224	198	18	8
February	3	..	3	271	..	271	243	2	34
March	19	..	19	145	..	145	116	5	24
April	15	2	17	219	..	219	188	9	22
May	16	16	32	480	..	480	404	13	63
June	64	12	76	336	..	336	287	21	28
Totals	190	39	229	2,899	..	2,899	2,509	117	273

APPENDIX J.

RATS DESTROYED AND EXAMINED AT OUT PORTS.

NUMBER OF RATS AND MICE CAUGHT OR COLLECTED AND EXAMINED AT OUT PORTS, 1st JULY, 1913, TO 30th JUNE, 1914.

1913-1914.	DESTROYED.			EXAMINED.		
	Rats.	Mice.	Total.	Rats.	Mice.	Total.
MARYBOROUGH.						
July	304	108	412	251	78	329
August	481	60	541	255	39	294
September	248	89	337	233	79	312
October	340	77	417	339	77	416
November	549	102	651	548	102	650
December	163	1	164	163	1	164
January—(Ratman ill)	..	..	..	..	..	..
February	407	68	475	407	68	475
March	521	65	586	521	65	586
April	578	57	635	578	57	635
May	519	70	589	519	70	589
June	606	79	685	606	79	685
TOTALS	4,716	776	5,492	4,420	715	5,135
BUNDABERG.						
July	225	56	281	11	8	19
August	278	27	305	60	2	62
September	254	53	307	29	8	37
October	439	52	491	108	15	123
November	432	30	462	101	..	101
December	428	36	464	78	..	78
January	341	27	368	11	..	11
February	349	42	391	36	..	36
March	325	29	354	28	..	28
April	353	31	384	9	1	10
May	439	30	469	190	2	192
June	366	45	411	179	..	179
TOTALS	4,229	458	4,687	840	36	876
ROCKHAMPTON.						
July	293	..	293	293	..	293
August	327	..	327	327	..	327
September	404	..	404	404	..	404
October	351	..	351	351	..	351
November	284	..	284	284	..	284
December	298	..	298	298	..	298
January	353	..	353	353	..	353
February	275	..	275	275	..	275
March	317	..	317	317	..	317
April	392	..	392	392	..	392
May	365	39	404	365	39	404
June	286	65	351	286	65	351
TOTALS	3,945	104	*4,049	3,945	104	*4,049
MACKAY.						
July	252	58	310	78	Smears submitted for Examination.	
August	236	79	315	75	,,	
September	202	15	217	138	,,	
October—(Ratman at Bowen)	..	..	..	..		
November	251	7	258	56	,,	
December	258	11	269	75	,,	
January	292	7	299	75	,,	
February	349	4	353	75	,,	
March	267	..	267	72	,,	
April	250	17	267	38	,,	
May	250	13	263	72	,,	
June	300	15	315	72	,,	
TOTALS	2,907	226	3,133	826	,,	
TOWNSVILLE.						
July	306	11	317	254	..	254
August	260	1	261	252	..	252
September	210	..	210	206	..	206
October	168	..	168	168	..	168
November	224	..	224	214	..	214
December	229	..	229	209	..	209
January	226	5	231	214	..	214
February	275	..	275	272	..	272
March	163	..	163	144	..	144
April	270	1	271	245	..	245
May	460	14	474	452	..	452
June	309	4	313	283	..	283
TOTALS	3,100	36	*3,136	2,913	..	*2,913

* Also includes rats and mice caught by ratman employed by Local Authority.

Ratman at Bowen from 28th September, 1913, to 4th November, 1913.
Ratman at Gladstone from 5th May, 1914, to 30th June, 1914.

APPENDIX K.

INFECTIOUS DISEASES NOTIFIED DURING THE YEAR.

DISTRIBUTION OF CASES OF INFECTIOUS DISEASES NOTIFIED FROM THE BRISBANE METROPOLITAN AREA, 1ST JULY, 1913, TO 30TH JUNE, 1914.

Local Authorities.	Typhoid Fever.	Scarlet Fever.	Puerperal Fever.	Diphtheria	Erysipelas.	Phthisis.	Ankylostomiasis.	Infantile Paralysis.	Cerebro-Spinal Meningitis.	Chicken-pox.	Total.
Brisbane ..	117	15	3	139	25	96	..	..	..	14	409
South Brisbane	74	6	2	110	13	61	2	..	..	3	271
Balmoral ..	11	..	..	25	3	10	..	1	..	1	51
Belmont ..	..	..	..	2	..	..	..	..	..	..	2
Coorparoo ..	7	1	..	17	1	3	..	..	..	2	31
Enoggera ..	5	..	..	3	..	5	..	..	..	..	13
Hamilton ..	7	1	1	119	..	14	..	..	..	4	146
Ithaca ..	63	6	..	55	4	16	..	1	..	4	149
Indooroopilly ..	..	1	..	1	..	..	..	..	..	..	2
Kedron ..	5	..	..	7	2	3	..	..	..	..	17
Sandgate ..	4	1	..	11	1	1	..	..	..	2	20
Sherwood ..	3	2	2	11	..	6	..	..	..	..	24
Stephens ..	9	1	1	23	1	10	..	..	..	1	46
Taringa ..	1	..	..	14	3	3	..	..	..	..	21
Tingalpa ..	1	..	..	..	..	..	..	..	..	..	1
Toombul ..	15	6	..	21	2	4	1	..	..	1	50
Toowong ..	20	4	..	15	8	8	..	..	..	6	61
Windsor ..	24	1	1	28	6	11	..	..	..	3	74
Wynnum ..	5	1	..	14	..	3	..	..	1	2	26
Yeerongpilly ..	6	..	..	9	1	3	..	1	..	..	20
Total No. reported	377	46	10	624	70	257	3	3	1	43	1,434

APPENDIX L.

INFECTIOUS DISEASES NOTIFIED FROM OUTSIDE METROPOLITAN AREA.

NOTIFICATION OF INFECTIOUS DISEASES RECEIVED FROM 1ST JULY, 1913, TO 30TH JUNE, 1914.

Notifiable Diseases.	Notifications Received.
Typhoid Fever	1,009
Diphtheria	976
Erysipelas	69
Membranous Croup	0
Puerperal Fever	22
Phthisis	214
Scarlet Fever	90
Cerebro-Spinal Meningitis	2
Ankylostomiasis	35
Continued Fever	4
Infantile Paralysis	3
Chicken-pox	78
TOTAL	2,502

Price, 3s.]

By Authority : ANTHONY JAMES CUMMING, Government Printer, Brisbane.